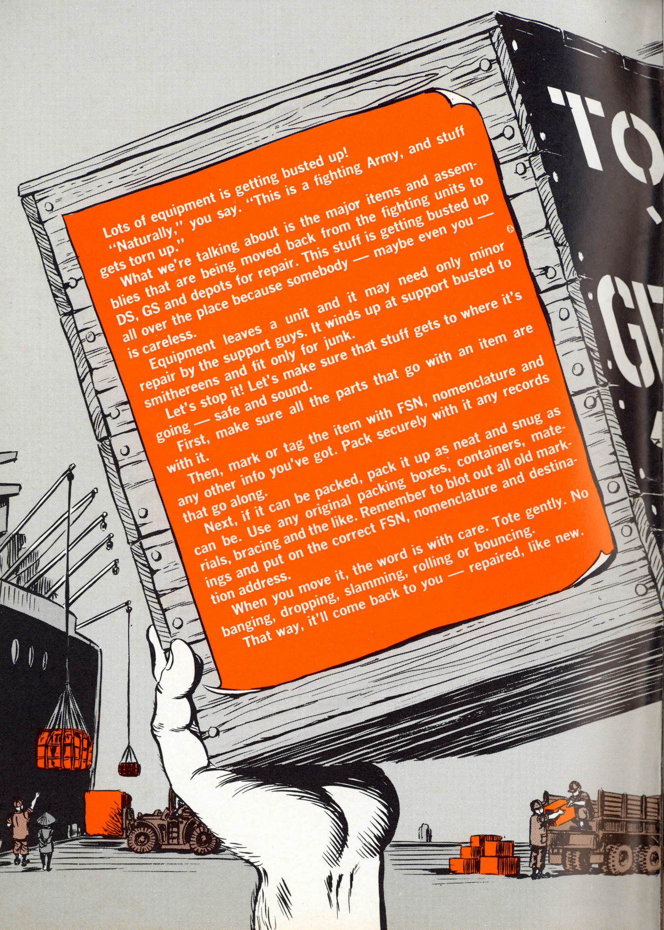
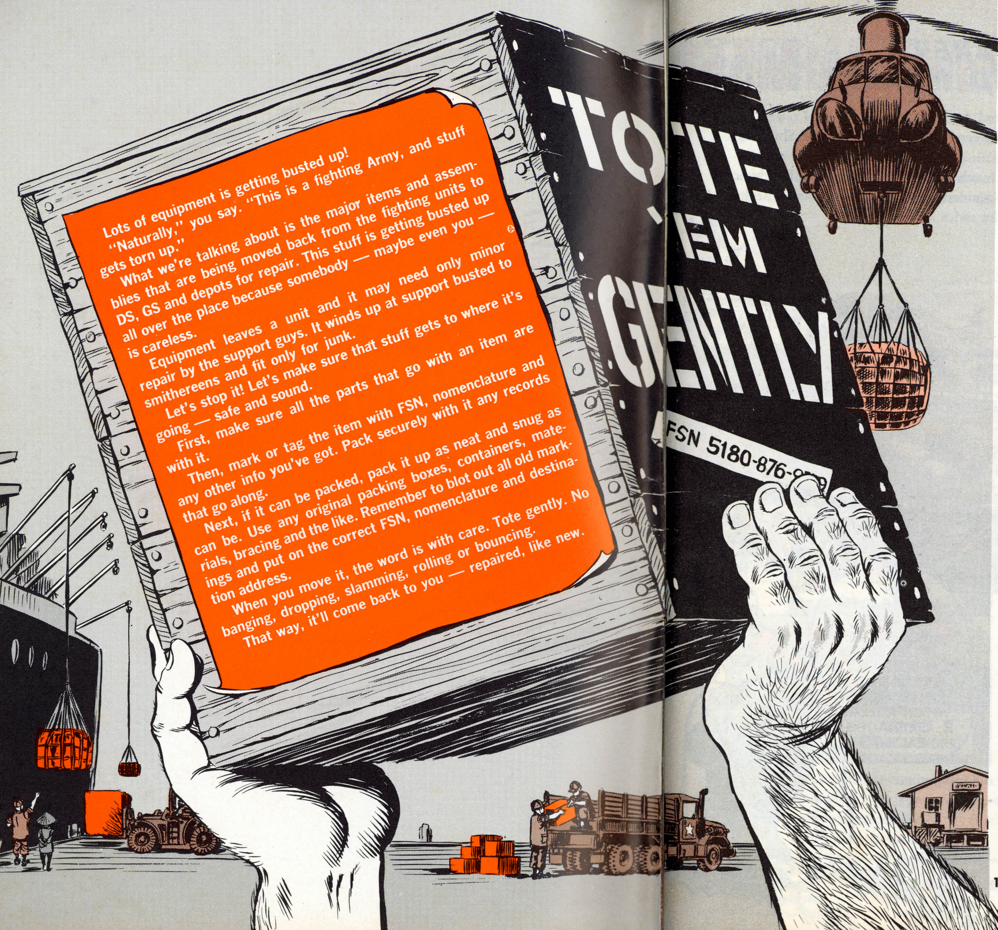
Issue 197

PS

1969 Series

THE PREVENTIVE MAINTENANCE MONTHLY


Lots of equipment is getting busted up!
"Naturally," you say. "This is a fighting Army, and stuff gets torn up."
What we're talking about is the major items and assemblies that are being moved back from the fighting units to DS, GS and depots for repair. This stuff is getting busted up all over the place because somebody — maybe even you — is careless.
Equipment leaves a unit and it may need only minor repair by the support guys. It winds up at support busted to smithereens and fit only for junk.
Let's stop it! Let's make sure that stuff gets to where it's going — safe and sound.
First, make sure all the parts that go with an item are with it.
Then, mark or tag the item with FSN, nomenclature and any other info you've got. Pack securely with it any records that go along.
Next, if it can be packed, pack it up as neat and snug as can be. Use any original packing boxes, containers, materials, bracing and the like. Remember to blot out all old markings and put on the correct FSN, nomenclature and destination address.
When you move it, the word is with care. Tote gently. No banging, dropping, slamming, rolling or bouncing.
That way, it'll come back to you — repaired, like new.
TO



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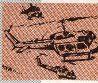

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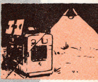

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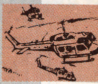

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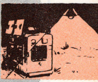

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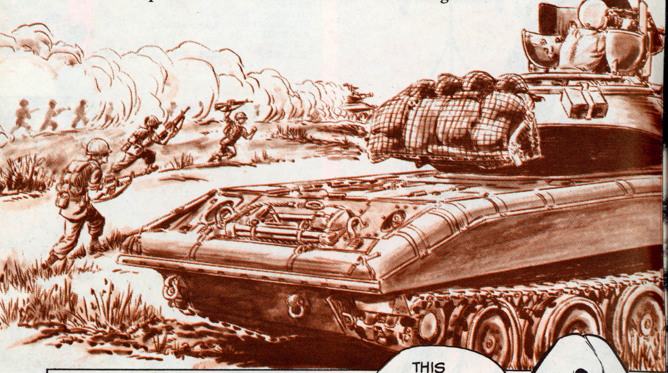
LEANER AND MEANER M551

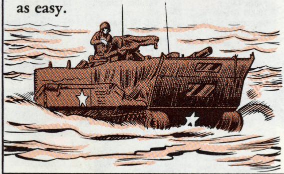
Your M551 is fast — 43 MPH top speed.

It's a double puncher — either 152-MM conventional ammo or the Shillelagh missile can flash out of its stubby barrel.

Designed as a recon vehicle, it has so much punch it is also an assault vehicle. Pound-for-pound it is the most heavily-gunned vehicle ever built, and it has more armor protection than some vehicles twice its weight.



It just takes a few minutes for the crew to turn the M551 into a boat for crossing lakes and streams and it can be turned back into a land vehicle just as easy.



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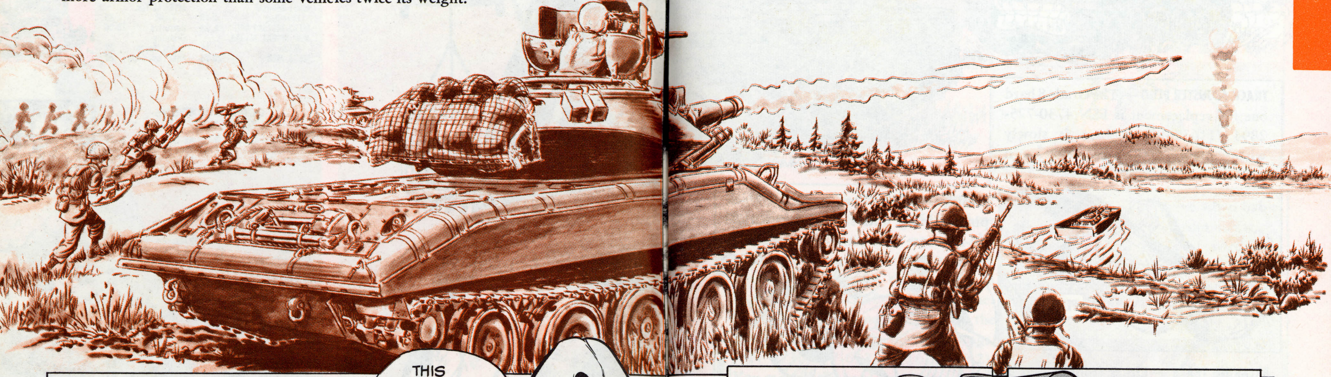
Combat loaded it weighs under 17 tons and outshoots and outscoots the M41 tank series and the M56 (SPAT) assault gun, which it will replace.

The Sheridan has all kinds of built-in goodies, like an electrically-operated breech which works with mind instead of muscle and saves the loader a lot of time and sweat. 'Course if he needs the exercise he can also operate it by hand.



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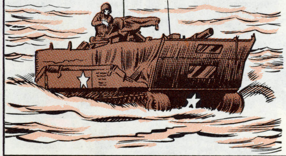

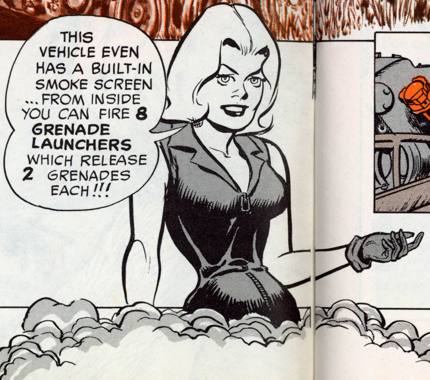

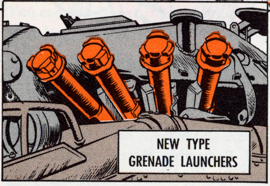

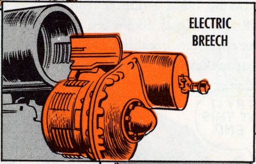

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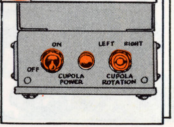

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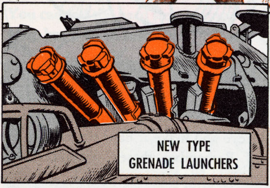

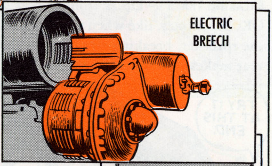

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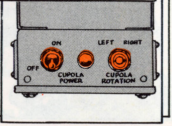
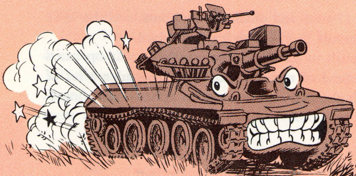
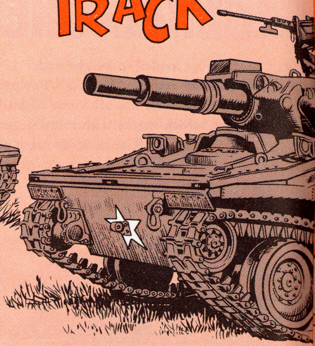


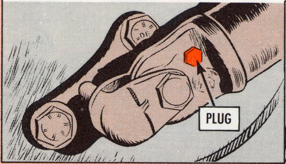
TRACK

TRACK ADJUSTMENT — If the track gets too loose it can slap against the bottom of the sponson and puncture it.





TRACK ADJUSTER PLUG — The Grade 8 hard one for replacement is FSN 4730-725-2894 (11635482). Loosen it slowly when you relieve the pressure or you'll get hit with flying grease.



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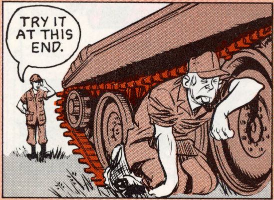

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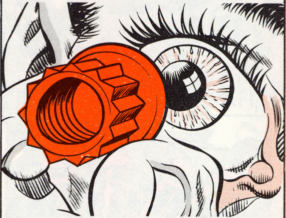
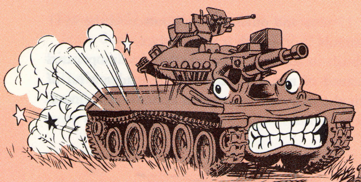
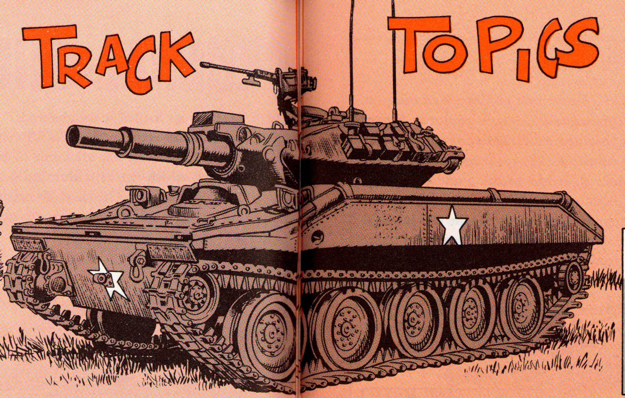


tween the track pins and the bushing sleeve and make it hard to get the shoe off. Remember, these are crimped self-locking nuts. If you have to take 'em completely off, throw 'em away and put on new ones because they lose their "hold" once they're taken off. These nuts are identical with the nuts on M113/M113A1 vehicle track.

TRACK TOPICS





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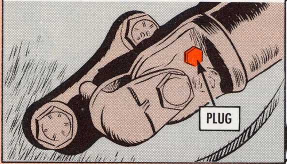

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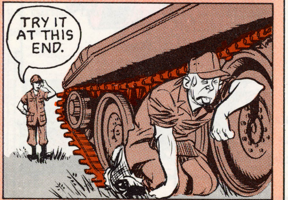

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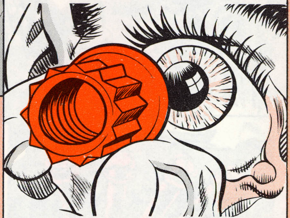

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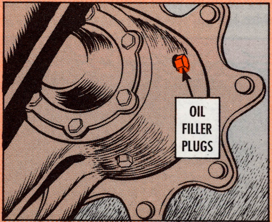
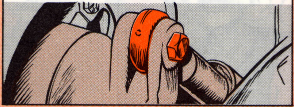
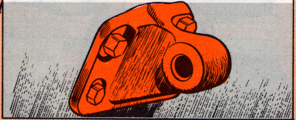
ROAD WHEELS—The oil-filler plugs were soft steel on some early M551's. These plugs are likely to seize up, and the corners will round off when you break 'em loose. Remember, they are not to be put in with over 12-18 lbs-ft torque. If they're too far gone, replace with the hard steel (Grade 8) oil-filler plugs, FSN 4730-277-6339 (11619600-2). You can tell the hard steel because each plug has 6 slash marks on its head.



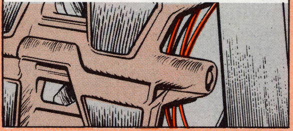
TRACK ADJUSTER STOP—If the track adjuster is up against its stop you won't be able to get any more track tension, so pull a track block.



PARACHUTE EXTRACTOR—For air dropping the vehicle—it's not a tow eye.



SPROCKET HUBS—They have a bad habit of picking up wire—commo wire, barbed wire, all kinds of wire—so watch for it. This wire gets wrapped up and catches in the rubber part of seal FSN 2530-732-1379 making it leak.



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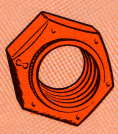

PS MORE

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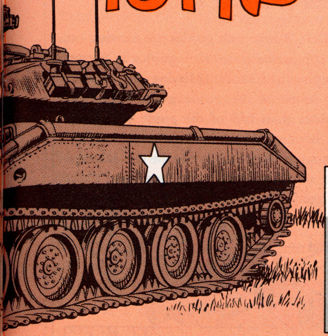

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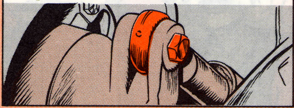

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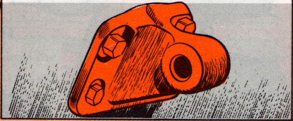

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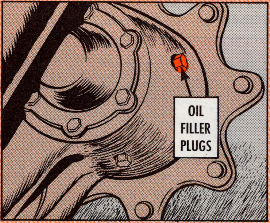

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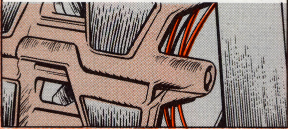

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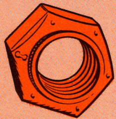

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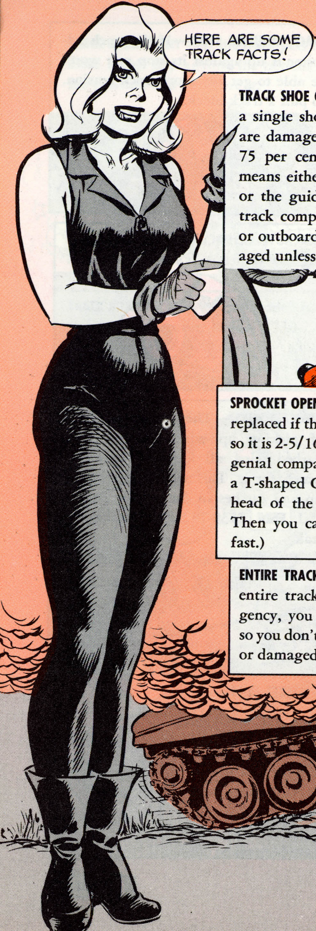
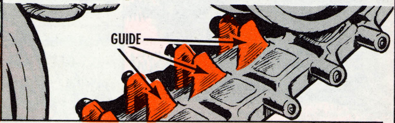
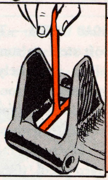


WHEN TO REPLACE TRACK SHOES

TRACK SHOE GUIDES—When both guides are missing on a single shoe, replace the shoe. If 3 guides in a row are damaged, replace the shoes. (Missing means with 75 per cent or more of the guide gone. Damaged means either: More than 1/3 of the guide is missing or the guide is bent so that it interferes with other track components.) If a hole is worn in the inboard or outboard face of the guide it's not considered damaged unless the guide is so weakened that it bends.



SPROCKET OPENING—The shoe should be replaced if the sprocket opening is worn so it is 2-5/16 inches or more. (Get your genial company mechanic to make you a T-shaped GO/NO GO gage with the head of the T exactly 2-5/16 inches. Then you can check the opening real fast.)



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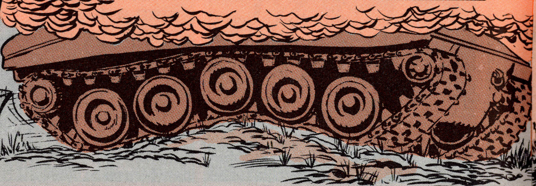

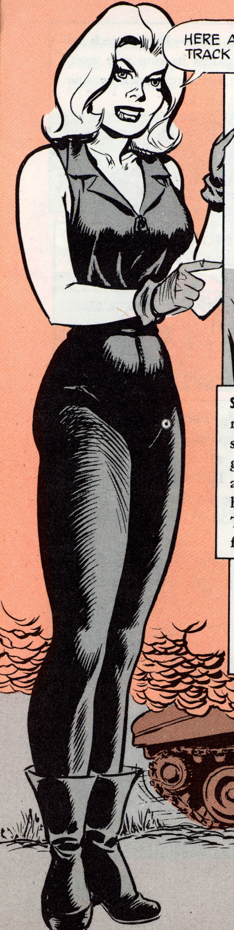

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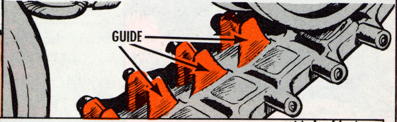

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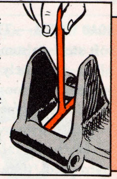

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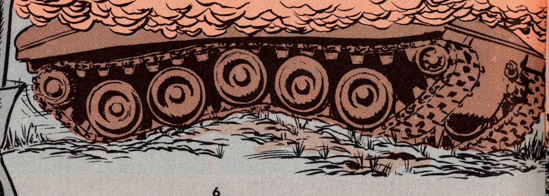
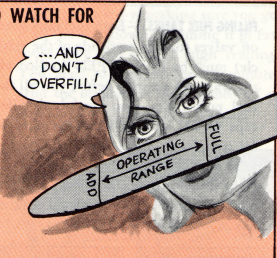
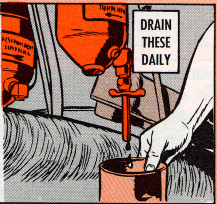


THINGS TO WATCH FOR

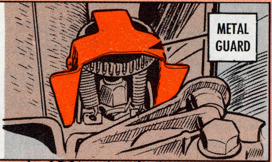
TRANSMISSION OIL—Your transmission does not burn oil the way an engine does. If the transmission oil level is often low, there must be a leak. If you can't find it yourself, get your mechanic to help. To keep from overfilling, remember that the oil should be at the upper limit on the operating range shown on the dipstick only after the engine has been out of operation for several hours.

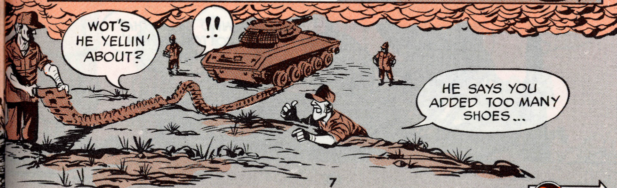


FUEL FILTERS—Like the TM says, draining the water out of the primary and secondary fuel filters is a **daily** before-operation. The drain cocks are subject to breaking so turn 'em easy like. Use a container to catch the water and fuel because if you let it slop down into the engine compartment it's hard to get out . . . and it could start a fire. Position the drain cocks so they don't vibrate against the engine exhaust manifold.



AIR BOX HEATER—Unless your accumulator hand pump handle is locked, engine vibration could pump up the accumulator so much that pressure would break the gage. (All new production vehicles have a metal guard to keep the handle from vibrating loose.)





PS MORE

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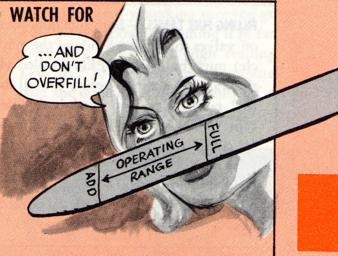

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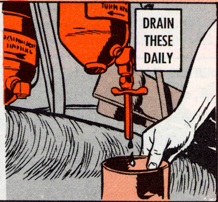

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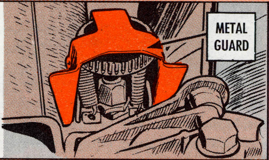
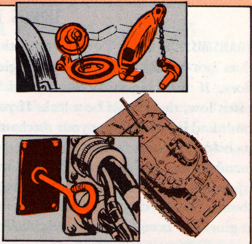


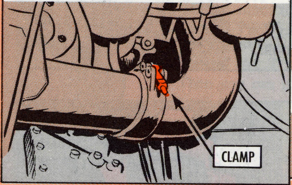
FILLING FUEL TANKS—Both fuel tank shut-off valves (one on each side of the vehicle) must be in the OPEN (pulled all the way out) position before you fill the fuel tanks. You also need both filler caps OPEN or you won't be able to fill completely the 3 fuel tanks on the vehicle. You can use either the left or right filler cap, whichever is handiest, but they both have to be opened regardless of which one you're using.



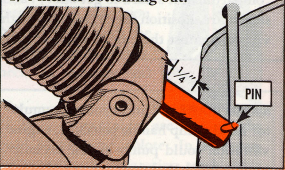
ACCESS PLUGS—Engine compartment access drain plug bolts will break if they're over-tightened. They need only 35 lbs.-ft. torque like it says in Ch 2 to TM 9-2350-230-12 (Jun 66) on page 5-18.

TROUBLE SAVERS

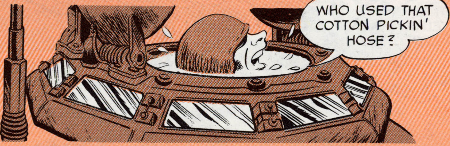
MUFFLER CLAMP—Keep it tight. If it falls off, enough heat can escape to melt the water steer cable covering.



BELT TENSIONER—Check your generator V-belt tensioner daily. Replace the belts in a matched set when the pin is within 1/4 inch of bottoming out.

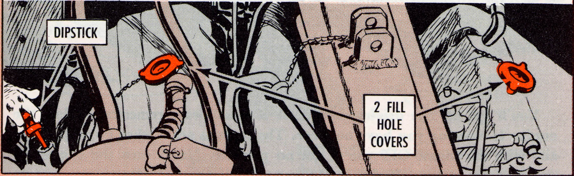


NO WATER IN TURRET—No water hose, even a low pressure hose, can be used inside the turret. The first reason is that there's too much exposed optical and electrical turret drive equipment. The second (and even better) reason is that the conventional ammo rounds can't take water.

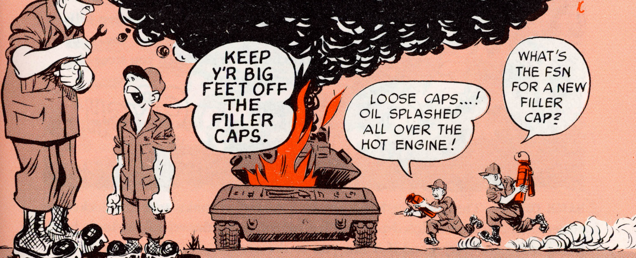


ENGINE OIL LEVEL—Check **before** you start the engine and again **after** you reach operating temperature the way it tells you in your vehicle LO, which is Appendix IV of your -12 TM.

To take a reading, pull the dipstick completely out, wipe it off, and stick it back in s-l-o-w-l-y, making sure you get it all the way down. Jamming it in fast could give you a false high reading. You need to wait at least 5 minutes after the engine has been turned off so you don't get a false low reading.

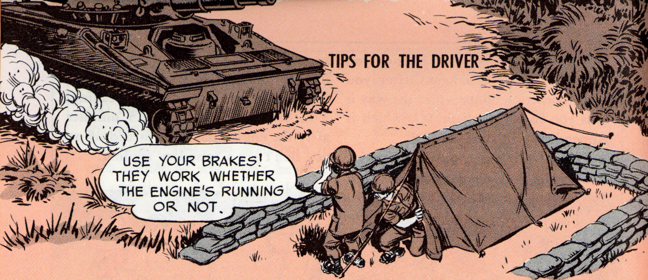


ENGINE OIL FILL—The 2 fill hole covers will vibrate loose unless you lock them down tight. If either one vibrates off, oil will be thrown out and the engine will heat up, and may catch on fire. You can use either hole but the one near the engine oil level is more convenient. A new cap with a bigger gasket (Detroit Diesel No. 72582-5140259) has been designed to solve the vibration problem. Order it as FSN 2815-758-9043. Crewmen working around the vehicle must be careful never to step on the filler caps.

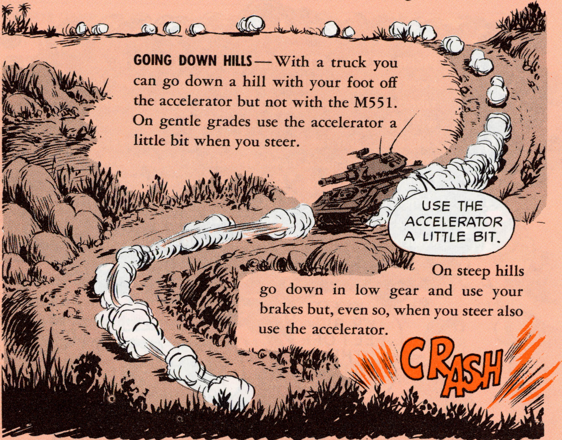


PS MORE

TIPS FOR THE DRIVER



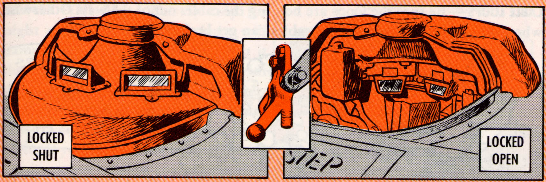
You'll get on fine driving the M551 if you always remember **unless the engine is running you have no steer.** The controls are worked by oil pressure and with the engine OFF you've got no pressure. Never turn the engine off and **then** try to steer. Brakes work even with the dead engine.



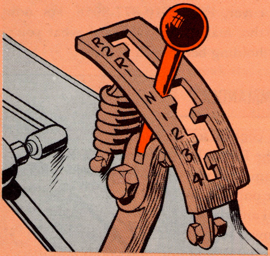
GOING DOWN HILLS—With a truck you can go down a hill with your foot off the accelerator but not with the M551. On gentle grades use the accelerator a little bit when you steer.

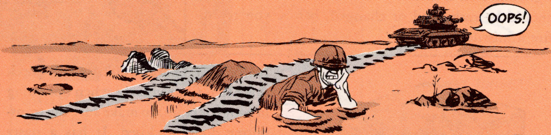
On steep hills go down in low gear and use your brakes but, even so, when you steer also use the accelerator.

HATCH COVER—The entrance hatch cover is heavy so make sure it's locked in either the open or the closed position before you move the vehicle. A loose hatch cover won't feel very good if it hits you in the neck.



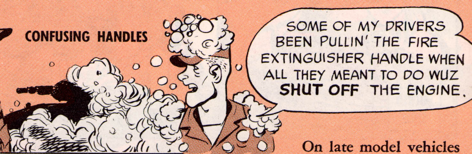
SHIFT LEVER—If you have to downshift, do it gently and at low speed. Never force your shift lever; the transmission has a shift inhibitor to protect against high engine speeds. Forcing a shift lever can loosen the control assembly at the mounting bracket in the driver's compartment. At the best this means the whole cable will have to be replaced. At the worst you could run over somebody because your shift lever would show NEUTRAL when you were actually in gear.

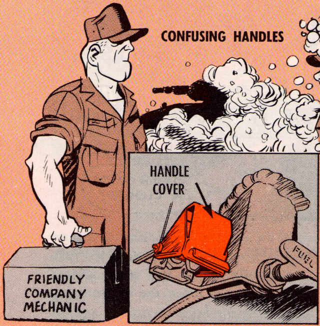




DANGEROUS HATCH HANDLE—The hatch handle is spring loaded and it can break the driver's jaw if it hits him. When it's released from either the left or right hatch locking latch the spring snaps it forward with a lot of force. If the driver has his face in the way (and this has happened) he can get badly hurt. So keep your face clear of the handle.

CABLE LOOPS—Be sure the loops are holding the cables out of the way. Otherwise, when the turret is traversed, the cables can get broken.

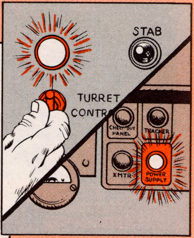


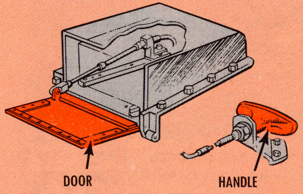


On late model vehicles above Serial No. 60, the fire extinguisher handle will be covered with a metal safety cover. On early vehicles your friendly company mechanic can order the parts and install this safety cover, FSN 2510-877-8958. For now, tho, make sure you know what you're holding before you pull it.

GUNNER AND COMMANDER

POWER SUPPLY—On your gun and turret control selector, when you flip the switch up and the POWER light goes on, the POWER SUPPLY lamp on the missile test checkout panel will also come on for just a second and then flick out. This is normal and shows your batteries are OK. However, if the power supply light stays on it means your batteries are weak and should be recharged or changed, before you try to fire a missile.

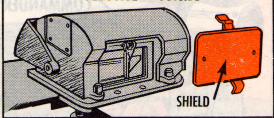


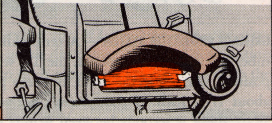


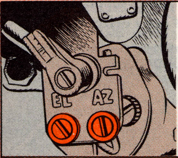
TRANSMITTER (XMTR) DOOR LOCK—Check this often (particularly when operating in rough terrain) to make sure the transmitter door is closed. It has a nasty habit of popping open which lets the lenses get dirty. Keep mud and dirt out of XMTR door microswitch. (Note: This door has to be in operating shape because you can't shoot a missile when the door is closed.) To lock or unlock door, be sure to turn the handle.

XM44E1 PERISCOPE—This is only for night work, and bright sunlight will damage it. If you want to boresight it during the day use the metal shield with the pinhole and also use the dark filter.

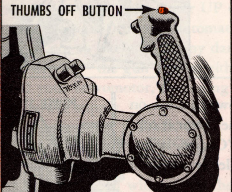
Always close the unity power window cover when using the periscope at night. If your M44 is not equipped with a unity power window cover plate, tape a thin piece of plywood over the window to keep the reflection of the turret lights from entering the periscope.





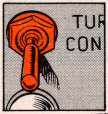


M149 TELESCOPE MOUNT—The elevation and azimuth adjusting screws should not be moved too far to the left or right. When you're adjusting one of these screws, stop when you feel a resistance, or you'll break the cable. If the screws jam, a LIGHT rap on the housing near the place where the adjustment flexible cable goes in will sometimes unstick it.



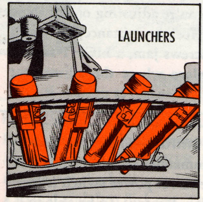
USELESS BUTTON—The buttons on the top of the gunner's and commander's operating handles have no function. They should not even be used as a thumb rest. The front trigger is for everything—the co-ax machine gun, missiles and conventional rounds.

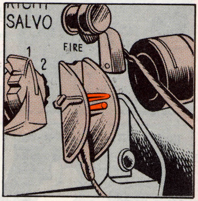
TURRET POWER SWITCH—Either the gunner or the commander should be in his seat when the turret power switch is in the ON position. Reason: To be able to take action in case of a runaway turret.



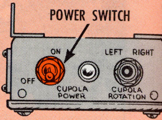
PS MORE

GRENADE PROJECTOR SYSTEM—After making sure that the M176 grenade projector tubes are not on the mounts, the TC will press the FIRING SWITCH at every position of the selector knob. In every position the solenoid pins should extend about 1/32 inch. If the system's not working right tell your mechanic. (Note: Wait about 4 seconds between firings for the system power supply to recharge. If you try it sooner and the system won't work, this is not a defect.)



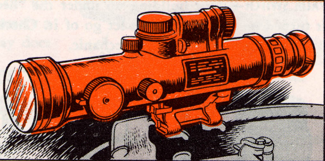


CUPOLA ROTATION—Never turn the cupola power switch on for longer than 5 seconds at a time, because the motor it controls will burn up if it's run continuously. ('Course, it just takes a second or so to spin the cupola completely around.)



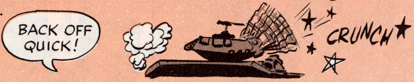
LOADER'S PADLOCK—Never store the padlock on the loader's hatch by relocking it through one of the hatch padlock eyes. If this is done, part of the padlock shackle can get caught under the cupola, which will be sprung and damaged. Likewise, don't relock it on the cupola lockwire because then the padlock could chip the cupola vision blocks. Keep it inside the vehicle when not in use. In combat this padlock can be used to lock the engine grille doors and keep the enemy from opening them and tossing in a grenade.

STARLIGHT SCOPE—The scope should be taken off the machine gun before you try to dismount the gun. Otherwise you're likely to break the mounting brackets off the scope.



DISMOUNTING .50 CALIBER—Before dismounting the M2 machine gun, the electrical cable must be disconnected at the quick disconnect. (Note: Dismounting the gun is a job for 2 people. If you try to do it alone you are likely to drop the gun and damage it.)

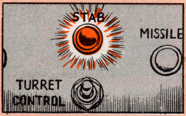
END OF THE LINE—Both the gunner and TC should learn to back off quickly when they get the gun tube either UP or DOWN as far as it'll go. In the stabilized mode the signal reverses automatically when you reach the end of the line and you're not so likely to do any damage. In the non-stabilized mode, if you keep on "driving" the gun against either the UP or the DOWN bump stop you can stall your servomotor, damaging not only it but also the motor generator and the power supply.



A high-pitched whine from the motor generator tells you the servomotor is about to stall, so back off right away before you smell burning insulation, which is the next sign.

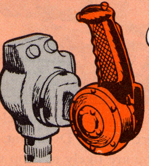
To back off you let go of the handle (which will spring back into neutral) and then you turn the handle in the opposite direction.

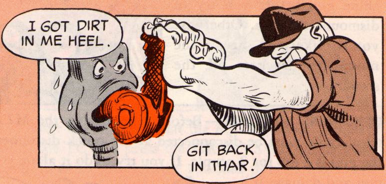
It's not a good idea to turn the handle quickly from one direction to the other without letting it stay for an instant in neutral.



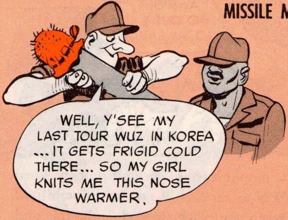
Until you get familiar with the controls it might be a good idea to operate only in the STAB mode to prevent this "end of the line" driving of the gun.

PALM SWITCH—Dirt building up under the "heel" of the palm switch can keep it turned on even when you let go of it. Check this often and when you need help, call on your company mechanic.

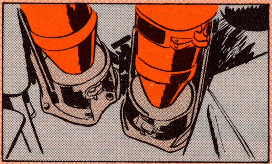




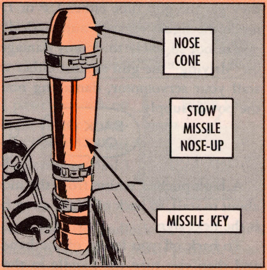
MISSILE MISCELLANY



LOADING MISSILES—The delicate part of the missile, the part that has to be protected at all times, is the nose, not the base as it is with CONV rounds. So you load them the opposite way, passing them into the vehicle bottom end first, always protecting the nose.



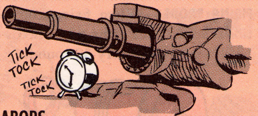
You stow CONV ammo nose down in the turret side racks. Put the nose of the round in the plastic nose support. Missiles are stowed nose up.



DENTED NOSE CONE—If a missile has a dented nose cone, don't put it aboard. It's safe to handle in this condition but might be dangerous to fire.

MISSILE KEY—When you put the missiles in the turret racks place them so that when you grab one for loading you won't waste any time spinning it around to get the key lined up the way you want it.

MISSILE DELAY—After you press the firing trigger it takes the missile nearly a second to get started. This delay does not mean anything is wrong.

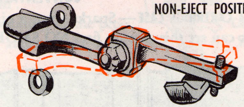


LOADER'S LABORS

The steps you follow in loading either the missile or the conventional round are normal loader's routine except for 2 things . . .

CONVENTIONAL ROUND—1. Ejector must first be in NON-EJECT (up) position. If you leave it in the EJECT position the combustible cartridge case would be punctured—dangerous.

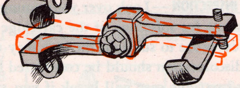
NON-EJECT POSITION



2. After firing, check for burning particles and if there are any swab them out of the chamber before you load another round. There will rarely be any residue but burning particles could set a round off. The pressure scavenging system is designed to take care of the residue problem.

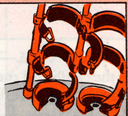
MISSILE ROUND—1. Put the ejector lever in the EJECT (down) position before you load the round. If it is in the NON-EJECT position the aft-cap would not eject.

EJECT POSITION

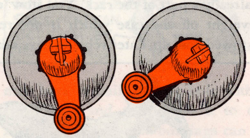


2. You've got to load the round so the key fits into the keyway. It won't go in any other way.

MISSILE RACKS—The adjustment of the hull stowage missile racks is critical. Too loose, and the rounds slip out. Too tight and you can't get the rounds out when you want to. Ask your mechanic to adjust 'em so it takes a force of 120 lbs-ft before the missile starts turning.



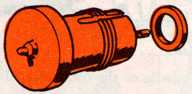
BREECH HANDLE—If you leave the manual breech handle engaged in the spindle slot when you open the breech by power, the rapidly spinning handle could hurt somebody—probably you. So make it a habit to flip the lever into one of the 8 outside slots before you operate the breech electrically.



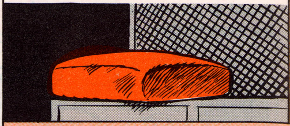
MANUAL ELECTRICAL

PS MORE

FIRING PROBE—When firing conventional ammo your firing probe needs to be cleaned about every 30 rounds.

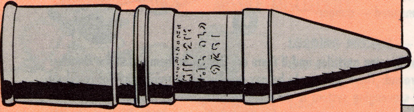


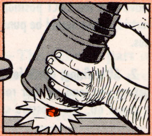
LOADER'S SEAT—No stepping on that backrest. It tears easily.



CONVENTIONAL AMMO

XM157 CARTRIDGE CASE—Sparks from a cigarette, an electrical short, any kind of spark can set this case on fire. NO SMOKING IN THE VEHICLE.



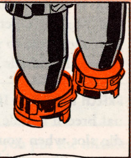


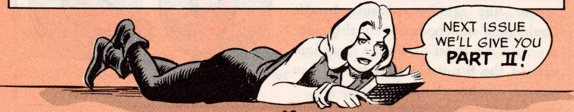
AMMO INSPECTION—Look over your ammo every week (every other week at the maximum) for softening of the cartridge case, oil stains or discoloration spots. After exposure to sunlight the case may turn yellow and that is OK but rounds with discoloration should be considered bad and not fired.

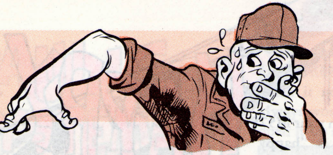
The cartridge case will break if you step on it or hit it with a sharp object. When loading the rounds be particularly careful not to break the cartridge case against the screws on the trim vane.

(Note: You can fire a round even if there are some small holes in the cartridge case.)

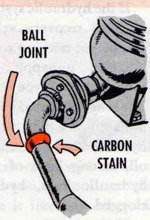
SUPPORT CONES—Save the polystyrene cones packed inside the cardboard containers with conventional rounds. Use these cones to protect the rounds when you stow 'em nose down in the turret ready racks providing the protectors are not already a part of the rack. You stow 'em that way to keep the weight off the case which is not real strong. Missiles are stowed nose up. Later vehicles have adaptors included as OVE.







NO-SWEAT STAINS



It's a no-sweat deal when you find carbon stains around the edges of the ball-joint connections in the exhaust pipe system on your M113 or M113A1 APC's.

It's due to a natural seepage of the exhaust and is no reason for alarm . . . no gigs, no nothin'.

The ball joint makes for easier positioning of the pipe inside the power plant compartment and absorbs some of the vibrational stresses.

O'course, if fire shoots past the joint, it's time for a change.

LATE ★★★ FINAL

BUSHING NEWS

ORDERLY ROOM EDITION

So you have one of the M60/M60A1 tanks, an M60A1 bridge transporting/launcher, an M48A3 tank, or an M728 CEV? Here's something to check . . .

The upper pivot pins on your friction shock absorbers take a lot of bumps and the pin can enlarge the 2 holes it fits through.

A little play in these pins soon becomes a lot of play and eats out the holes.

Check this often and if the holes are starting to go, get your direct support to ream 'em out and put in bushings. The bushings for this job are not listed in the supply manuals yet but they can be ordered as FSN 2530-930-2319 (P/N 11590958).

The late model M60A1 tanks and bridge launchers and M728 CEV's come with bushings already in the holes. If they get worn and drop out, support

may have to build up the hole with a little weld and then ream it to the right size before new bushings can be installed.

M578/M88
RECOVERY VEHICLES

If the hydraulic system on your M578 or M88 recovery vehicle is "happy" you've got nothing to worry about.

If it's "unhappy"—slow, sluggish, without pep—you're both in trouble.

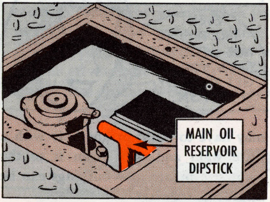
Things that make hydraulic systems unhappy are dirt, water or air in the hydraulic oil, too much or not enough oil, wrong kind of oil, leaks in the hydraulic lines, hydraulic oil filters clogged.

Your common sense will tell you how to avoid most of these things, but the hydraulic oil filters are something else. Unless you read your manuals real sharp you won't know where they are or how to take care of them.

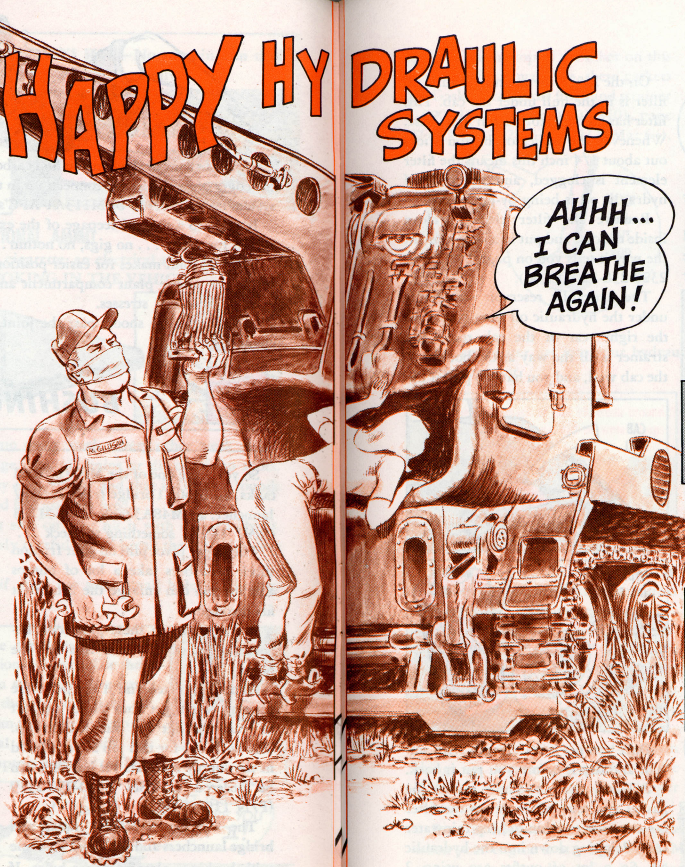
M88 HYDRAULIC FILTER

The main reservoir hydraulic oil filter for the M88 is under the rigger's seat and you have to unhook the rigger's light selector switch and 6 bolts on the access plate before you can get to it.

Even so, this ought to be checked daily when you check the main oil reservoir dipstick—which is under a separate access plate just to the left.



HAPPY HYDRAULIC SYSTEMS



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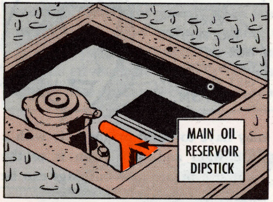
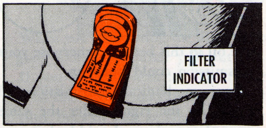
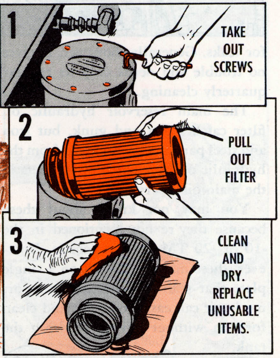


There's a tell-tale indicator on the filter which is supposed to show you when it needs cleaning, but it won't always work. So, if you think it's dirty, open it up and see.



Take the set screws out with an allen wrench and then you can pull out the filter. You clean it like any other oil filter. Clean and dry all parts. Replace unserviceable items. Use new gaskets.

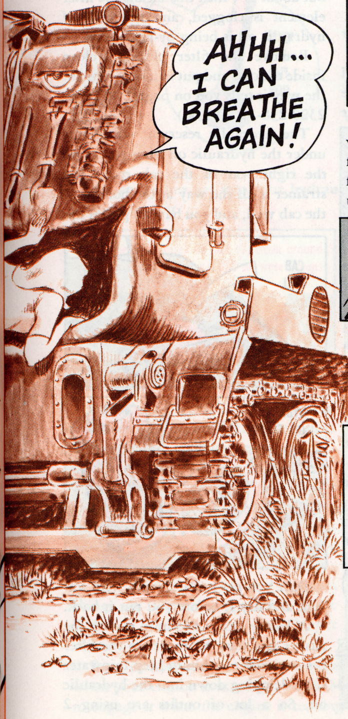


After you put it back and tighten the set screws, get the hydraulic system under pressure and watch the filter for leaks before you put the seat back.

While you have the seat out of the way, check the mechanical transmission (PTO) dipstick. It's important that you

PS MORE

DRAULIC SYSTEMS



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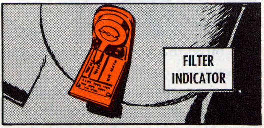

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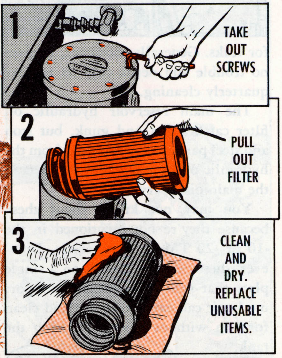

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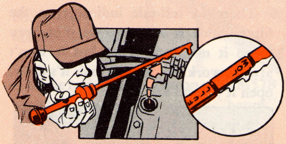
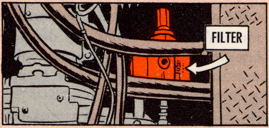
PS MORE



have oil in this because otherwise your transmission could burn up.

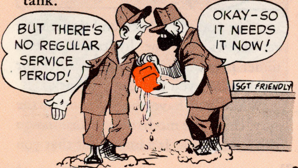
Your mechanical transmission oil filter is to the right under the same access plate and you should look it over



for leaks. Generally, however, it gives no trouble and needs only its regular quarterly cleaning.

The main reservoir hydraulic oil filter catches dirt and gunk, but iron and steel particles are removed from the hydraulic oil by a batch of magnets in the main oil reservoir.

You may not know about these because they're not mentioned in the -10 or -20 TM for the vehicle. However, these magnets are all on a single plate that your warm-hearted support mechanic can easily take out and clean for you without having to drain the tank.

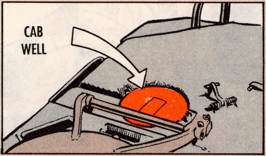


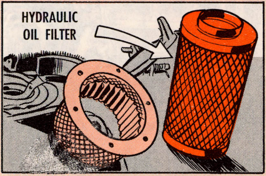
M578 RECOVERY VEHICLE

On the M578 the main hydraulic oil filter is in the hull under the cab. This filter has an indicator button in its base. Whenever the indicator button sticks out about 1/4 inch this means the filter element is clogged, and the flow of hydraulic oil is being by-passed.

Remove the filter element, clean inside the case and put in a new element the way it tells you on page 1 of LO 9-2320-238-12 (Oct 66).

The hydraulic reservoir strainer is under the hydraulic oil filter screen on the right rear of the cab roof. The strainer is all the way at the bottom of the cab well, and you have to pull it up.

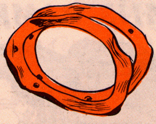




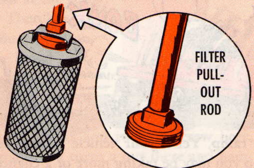
Once you get it up, clean it with solvent and dry it before you put it back.

A handy thing to know is that the gasket you take off to get to the filter is sometimes too thin to keep rainwater from dripping down into the hydraulic oil. So a lot of outfits are using 2

gaskets, one on top of the other on this position. If you need 'em, these gaskets are Gaskets, reservoir filter and strainer (10908813) FSN 2520-991-8401, page 27 of TM 9-2320-238-35P/2 (Mar 64).



GASKETS FSN 2520-991-8401



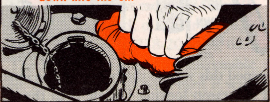
When you're cleaning the filter, take a good look at the filter pull-out rod.

If you spring a leak in a hydraulic line on the M578, you can use this rod to plug the exit hole in your hydraulic oil reservoir so you don't lose all the oil.

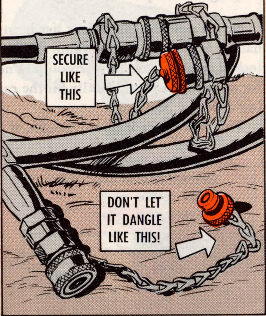
BOTH M88 AND M578

Dirt and water get into your hydraulic oil mainly in 2 ways, both of which you can prevent.

1. When you check or add oil, clean around the hole first so no dirt or water drops down into the oil.



2. The quick disconnect caps on the impact wrench get dragged in the dirt and when they're put back they transfer the dirt to the hydraulic oil. It just takes a second to connect them up the way they're supposed to go, then this won't happen.



One of the biggest causes of beat-up hydraulic systems is working the system too hard and too fast before the hydraulic oil gets a chance to warm up.

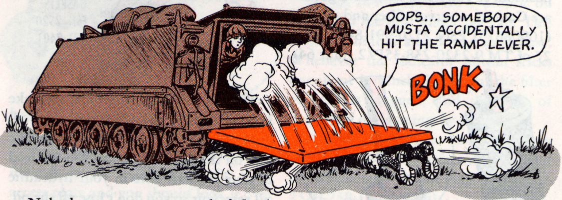
It's called "hydraulic oil" because it's the oil in the hydraulic system but, as you know, it's just plain OE 10. In cold weather—check your LO's, they may call for OES.

Take all the time you need to warm things up. The times suggested in the TM's are minimum times. Take longer if you need it.

Even in hot weather it's not a good idea to engage your hydraulic system when your engine is at a high RPM. Make it a rule summer and winter never to engage it when the engine is turning over at more than 800 RPM.

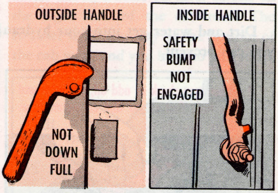
PS END

M113 RAMP DOOR DOPE



Nobody wants to get smashed flat by a ramp. Yet if your vehicle belongs to the M113/M113A1 family and has a ramp you may be taking more of a chance on this than you think.

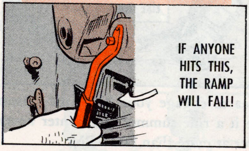
On about half the vehicles you can open the ramp door with the outside handle without putting the handle in the full DOWN position. 'Course when you do this the inside ramp door handle is not in the full UP position and that little bump on the inner handle is not keeping the ramp from falling.



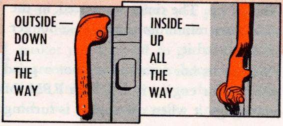
Now s'pose the ramp door has been opened this way so the bump on the inner handle is not keeping the ramp secure. If the ramp locking handle is in the unlocked position you have absolutely no ramp safety catches. All it would take is for somebody to accidentally hit the ramp lever and the ramp would come crashing down.

This will never happen, though, if you do these 2 things:

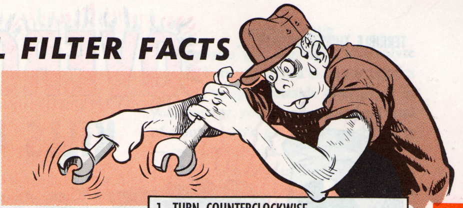
1. Always keep the ramp locking handle in the locked position when the ramp is up.



2. When opening the ramp door with either the inside or outside handle, push the handle as far as it will go DOWN (for the outside handle) or UP (for the inside handle) so the bump on the inner handle gets into position as an added safety to keep the ramp from falling when the ramp door is open.



M151 OIL FILTER FACTS



Get your PM wits at the ready.

There's a "Bust Nut" on the loose!

Who is he?

He's the guy so insecure he over-tightens everything in sight.

He grunts and twists a screw here, groans and turns a nut there and hammers down to a pulp.

If you see him messing with a M151 engine oil filter element, FSN 2940-832-6054, you better cut him down to PM size. Otherwise, the next guy will end up with operating and mechanical migraine.

You'll find the best method of installing the 1/4-ton truck oil filter on page 2-106 of TM 9-2320-218-20 (Aug 68).

The M151 oil filter is the disposable kind. All you have to do is turn it with your hand counterclockwise to remove, and clockwise to install.

Important thing is to see that the seal has not been cracked by over-tightening, causing an oil leak after full pump pressure goes on.

Smart move here is to put handy PM into action.

Be sure you operate the engine and check for leaks after you have installed the oil filter element.

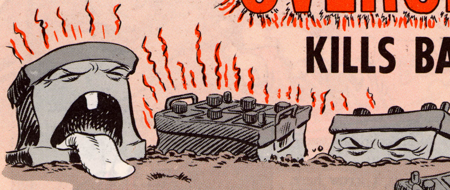
Just in case a "Bust Nut" was looking over your shoulder, you can wise him up by lubing the neoprene seal on the filter element before you put it on.

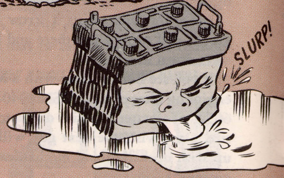
This'll make the job easier for everyone the next time.

TERRIBLE THIRST SIGNALS...

OVERCHARG[E]

KILLS BATTERIES





Adding water to your battery is like taking aspirin for a headache—if it takes an awful lot to do the job, you'd better find out what's causin' the trouble.

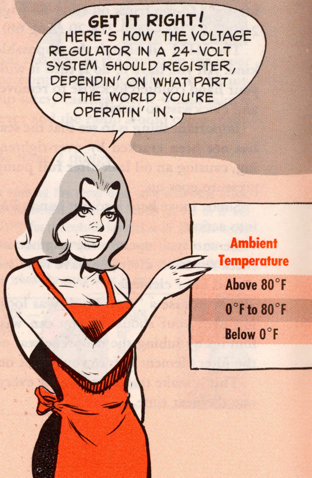
Your lead-acid battery's bound to need a little water once in a while to keep the electrolyte up—3/8 inch over the tops of the plates. And if you're in the land of parrots 'n' pythons, you're a little busier than other guys carryin' water to your batteries.

But if your batteries are gulpin' water like there's no tomorrow, something's wrong!

LIKE WHAT?

It could be a leak—like a crack in the case—but you'd probably spot that pretty easy. Besides, your battery would soon run down and you wouldn't be able to charge it back up if your electrolyte was overdiluted with water.

No leaks? Then you can just bet your bottom buck that your battery's terrible thirst is caused by overcharging. So you get a mechanic quick to check out your charging system—especially the voltage regulator. It may be set too high.



TERRIBLE THIRST SIGNALS . . .

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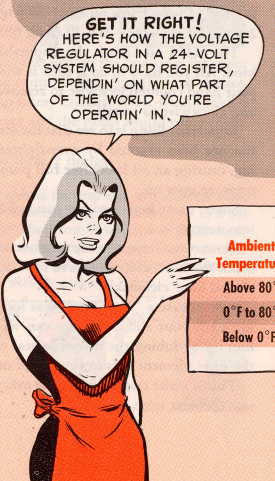
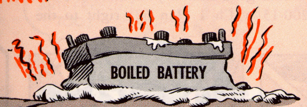


Ambient Temperature	Voltmeter Reading
Above 80°F	27.0 to 27.5
0°F to 80°F	27.5 to 28.0
Below 0°F	28.0 to 28.5

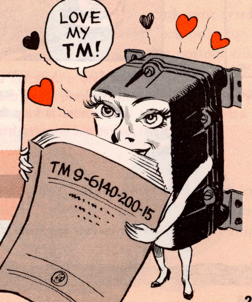


If your regulator is set higher than its spec, you're gonna get over chargin' of your batteries . . . so get your support to adjust your regulator to a lower setting. . . .

On the 100-amp system, your unit mechanic is authorized.

Your regulator setting's a matter of life or death for your batteries.

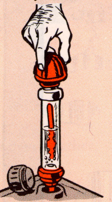
Overcharging is the biggest cause of battery failure in hot weather—like in Southeast Asia where the temperature averages 90° and often goes to over 100°. Your battery's positive plates swell, buckle and crumble. Give it long enough and this swelling can bust right through the top of your battery.



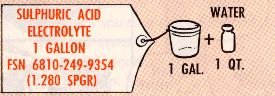
SIZZLIN' SOUP

Have you got the right electrolyte in your battery? If you're in the tropics and you've got stateside electrolyte in your battery, you're in for the same kind of trouble you'd get from overcharging—ruined batteries.

Your electrolyte in the tropics should have a specific gravity of 1.200 to 1.225 when your battery's up to full charge. Better check it out with the hydrometer in your No. 1 Common Tool Set to make sure.



Stateside electrolyte (FSN 6810-249-9354 for 1 gal) has a specific gravity of 1.280—too strong for tropical operations. But you can use this electrolyte in the tropics by mixing 1 gallon with 1 quart of water to get 1.200-1.225 specific gravity.



If you're changing to tropical electrolyte in a battery that's already in service, make sure the battery's up to full charge before making the switch. Then, after you've changed to the 1.200-1.225 SPGR electrolyte, put the battery on a charger. When 3 specific gravity readings, taken at 30 minute intervals, show the battery's fully charged, it's ready to go back into your equipment. Batteries with diluted electrolyte for tropical use should be marked for identification by painting a 1-inch white dot on top.

PS MORE

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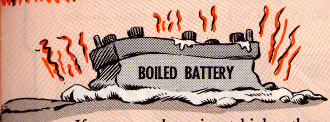

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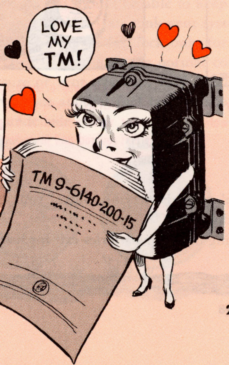

Voltmeter Reading
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27.5 to 28.0
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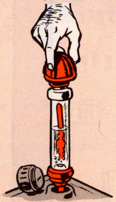
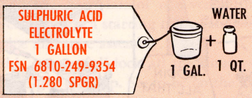


Stateside electrolyte (FSN 6810-249-9354 for 1 gal) has a specific gravity of 1.280 — too strong for tropical operations. But you can use this electrolyte in the tropics by mixing 1 gallon with 1 quart of water to get 1.200-1.225 specific gravity.

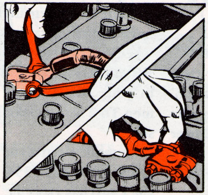


If you're changing to tropical electrolyte in a battery that's already in service, make sure the battery's up to full charge before making the switch. Then, after you've changed to the 1.200-1.225 SPGR electrolyte, put the battery on a charger. When 3 specific gravity readings, taken at 30 minute intervals, show the battery's fully charged, it's ready to go back into your equipment. Batteries with diluted electrolyte for tropical use should be marked for identification by painting a 1-inch white dot on top.

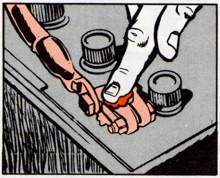
PS MORE

OK, so your electrolyte is what it's supposed to be.

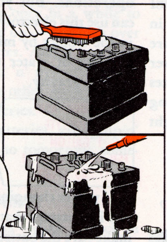
And you figure you take good care of your batteries, followin' TM 9-6140-200-15 w/Ch 1 (Jan 62) right to the letter —



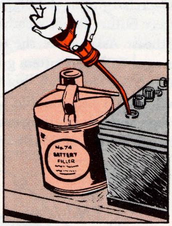
You keep cable 'n' clamp hook-ups tight and clean.



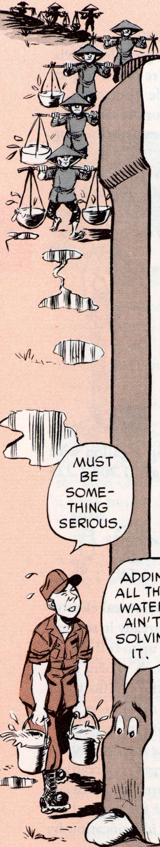
You make sure there's a light coat of GAA on those connections to fight off corrosion.



You scrub your battery top often with baking soda 'n' water and rinse 'er good after.



And you keep a sharp eye on that electrolyte level, adding clean water when needed to keep the plates covered and protected from air.

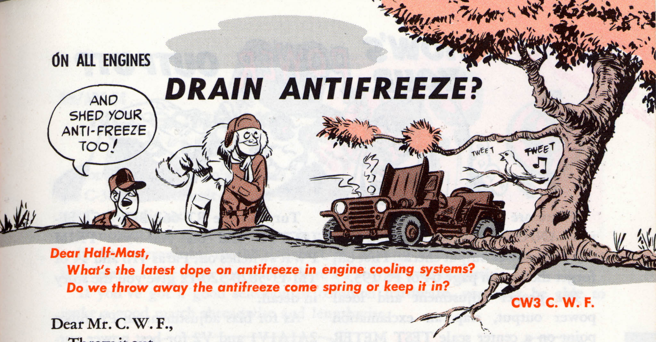


But if you're runnin' ragged carrying water, your battery's trying to tell you something!

Maybe you're drowning out your batteries call for help.

ON ALL ENGINES

DRAIN ANTIFREEZE?



Dear Half-Mast,
What's the latest dope on antifreeze in engine cooling systems? Do we throw away the antifreeze come spring or keep it in?

CW3 C. W. F.

Dear Mr. C. W. F.,

Throw it out.

TB 750-651(18 Nov 68) now applies across-the-board on engine cooling system maintenance.

It says antifreeze will not be kept in the cooling system through warm weather. Be sure to use rust inhibitor in the warm weather like the TB says.

This goes for all liquid-cooled engines.

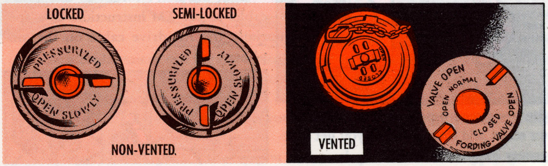
Half-Mast

RETURN TO STARDOM

Look what's back on the scene. It's none other than plain ol' non-vented fuel tank cap (FSN 2910-753-9118). Ol' non-vent cap gets a starring role again since new trucks have fuel tanks vented by a pipe and tube assembly.

Although you should be able to keep this cap on full-lock all the time, you never can tell when your tank vent system might plug up. So, to be on the safe side, turn this cap to full-lock only for fording and extra hot operating conditions. Turn to semi-lock for normal conditions.

Pressure or vent-type cap, FSN 2910-141-9758, will still be around for vehicles without another fuel tank venting system. This cap has a vent adjustment on the underside.



HOW'S YOUR POWER OUTPUT?

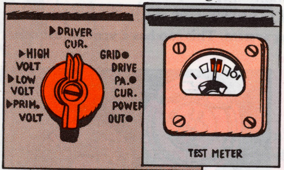
There are power output checks for your AN/GRC-106 radio set; and then there are power output checks. First off, forget the one on page 64 of PS 193.

For proper adjustment and ideal power output, slap an exclamation point on a center scale TEST METER reading and correct switch setting.

To adjust driver amplifier tube plate current, do this:

Set the RT-662 SERVICE SELECTOR switch to SSB-NSK. Set the AM-3349 PRIM PWR switch to ON. Give the tube plate current four minutes to stabilize. Then, set the amplifier's TEST METER switch to PRIM VOLT. Wait'll the meter needle swings between the green on the scale and set the HV RESET switch to TUNE.

Now, set the TEST METER switch to DRIVER CUR. Adjust resistor 2A8A1R6 for a meter reading between

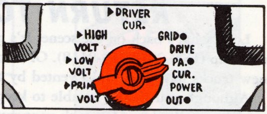


the two green positions. That'd be center scale, and there's where you get best power output.

Turn off the RT-662 SERVICE SELECTOR and the AM-3349 PRIM PWR switches off. Paras 41b and 44 of TM 11-5820-520-12 give you the story in detail.

As for bias adjustment on PA tubes 2A1A1V1 and V2 for best power output, para 41c of the -12 gives you the word.

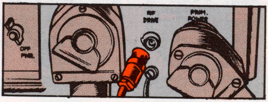
Underline these, though: The TEST METER reading should be center scale, same as for driver amplifier tube plate current, and the TEST METER switch must be on **PA CUR.**



Remember, you gotta get a center scale reading, between the green.

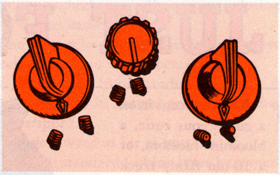
In the green, to the side of it, etc., means you've got less than full power output . . . and more adjusting to do.

And, uh, don't forget to disconnect cables as per TM instructions . . . 'specially the RF drive cable on the amplifier.



AN/ARC-54 . . .

NO SCREWS TO USE?

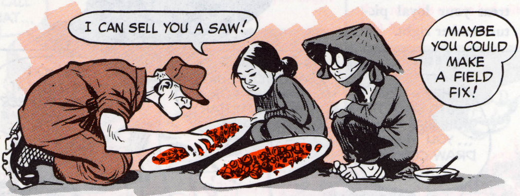


Got the knobs but no setscrews for the C-3835 control unit on your AN/ARC- 54 radio set?

Man, that can spell blue times in the boonies.

If the setscrews for the MODE, SQUELCH, and VOLUME knobs didn't hit boonieland right with the knobs, here's a way or two of getting by—

If you've got a good selection of common hardware, you may be able to make a good match threadwise and lengthwise.



Or . . . you can remove the needed setscrews from salvage control units.

In an absolute pinch, it's possible to field-fix a too-long setscrew by cutting it off with a hacksaw to the right length. The VOLUME knobs rate 2 3/16-in screws, the MODE and the SQUELCH knobs use 2 each of a 1/8-in screw.

The same hacksaw can also groove the head of the screw, if need be.

Keep in mind, though, this kind of field-fixin' takes matching threads, regardless of the length of the setscrew.

KEEP A CAP

Short a replacement cap for the charging end of your IM-93/UD, IM-9/PD, or IM-147/PD radiacmeter? Try this old standby:

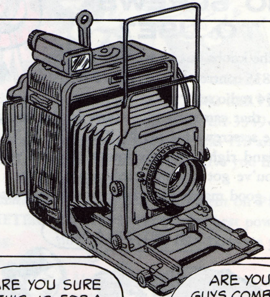
Slip on a homemade cellophane or cloth cap. Anchor it with a rubber band. This'll keep the dust down and help you dodge faulty readings on your pocket dosimeter.

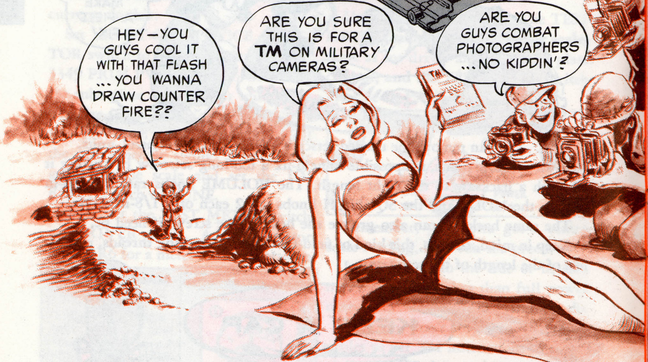
'Course, it's best to protect the cap you have—they're not in the supply system.

JUST FOCUSING

You can focus in on a curvaceous cutie, a bloomin' blossom, or a 10-ton Army truck with your KE-12 (2) still camera.

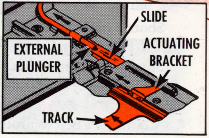
You'll probably get some good pictures, too—especially if you treat your loyal picture-maker right.





One thing to watch is closing your camera's bed assembly without racking the track all the way inward.

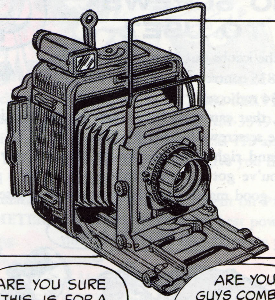
This can cause bending or breakage of the rangefinder slide, that all-important metal strip between the actuating bracket and the external plunger that activates a spring in the rangefinder tube assembly.

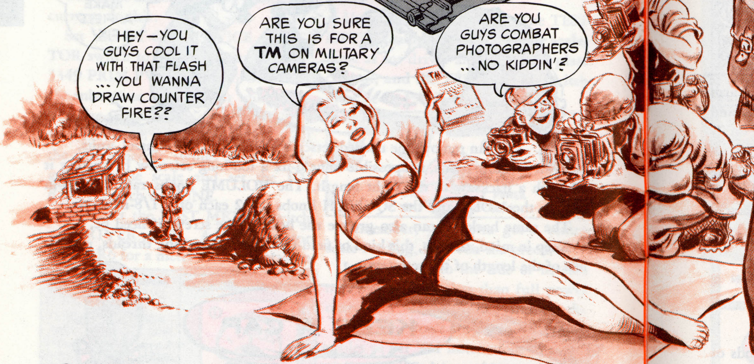


JUST FOCUSING IN

You can focus in on a curvaceous cutie, a bloomin' blossom, or a 10-ton Army truck with your KE-12 (2) still camera.

You'll probably get some good pictures, too—especially if you treat your loyal picture-maker right.





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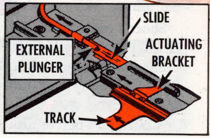


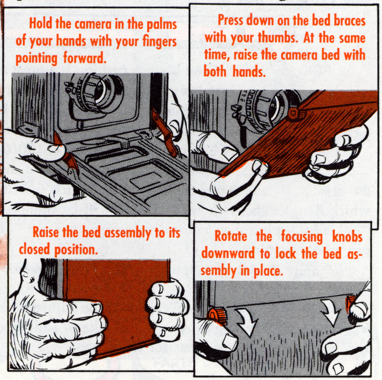
It never hurts to check yourself on proper closing procedures for your camera:

Remove the cable release if it's attached and move the track lock forward to the unlocked position.

Check to be sure the front standard assembly is centered and lowered to its normal position and that the shutter is tripped.

Rack the track inward as far as you can.

Unlock the front standard locking lever by centering it between the tracks; push the front standard assembly back into the camera body and lock it into position with the front standard locking lever.



And bear in mind . . . when you cock the shutter, the cocking ring should be rotated about a quarter-inch beyond the point where you hear or feel a positive click, to get a full cock. No force, please!

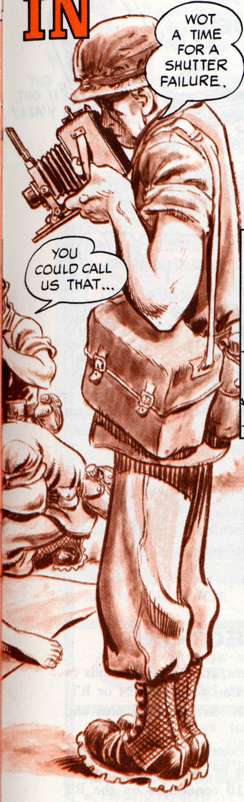
Improper cocking can goof up your shutter release and flash circuit energizing.

Damage can come as a result of failure to get a full cock the first time, then forcing it for the second try.

But the main thing is, you've got a professional camera there, and the professional ability to use it.

Make that PM professional, too.

IN



It never hurts to check yourself on proper closing procedures for your camera:

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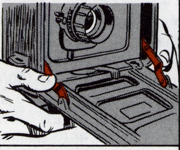
Check to be sure the front standard assembly is centered and lowered to its normal position and that the shutter is tripped.

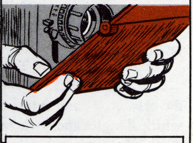
Rack the track inward as far as you can.

Unlock the front standard locking lever by centering it between the tracks; push the front standard assembly back into the camera body and lock it into position with the front standard locking lever.

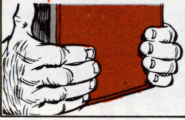
Hold the camera in the palms of your hands with your fingers pointing forward.



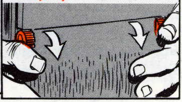
Press down on the bed braces with your thumbs. At the same time, raise the camera bed with both hands.



Raise the bed assembly to its closed position.



Rotate the focusing knobs downward to lock the bed assembly in place.



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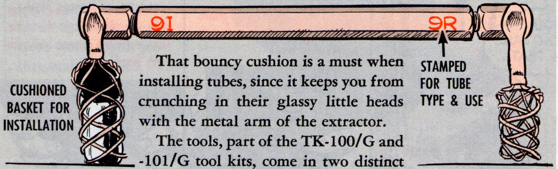
HERE'S ONE WAY TO TICKLE A TUBE

Next time you're about to tickle a tube into place, don't make a lump of 'er because you failed to use the bumper . . . the rubber bumper on your basket-type tube extractor, that is.



That bouncy cushion is a must when installing tubes, since it keeps you from crunching in their glassy little heads with the metal arm of the extractor.

The tools, part of the TK-100/G and -101/G tool kits, come in two distinct flavors . . . 7- and 9-pin. To figure out which is which, eyeball the metal arm which dangles the baskets. Each end will be stamped. The job with "9R" and "9I" is for 9-pin tubes, naturally, and you use the "7R" and "7I" model on 7-pin tubes. Simple.

"R" and "I" clue you on which end of the extractor is supposed to remove or install.

Since you've already discovered that the adjustable arms are great for snatching tubes at hairy angles, you might like to add "hot" tubes to your snatching list. The extractors are great for those, too.

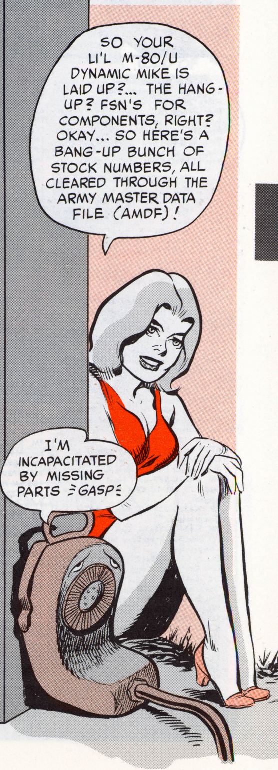
AN/VRC-12 Radio Set Series . . .

COLOR-CODE CONNECTORS

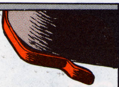
To add color to your life and zest to your equipment, color-code the ends of your CX-4722 cable and the corresponding connectors on your RT-524 or RT-246 receiver-transmitter. Paint or plastic tape'll be OK. Saves busted pins and mashed-up connectors.

Without color, trouble bubbles when you try to connect the CX-4722 backwards (male to male) on the MX-2799 matching unit or mis-mate the female connectors on the RT and cable. That's how J-353/310 connectors on the RT units and J-551 connector on the matching unit are botched.

FSN's TO CLEAR THE BINS



Carrying clip (belt clip, microphone hanger), FSN 5965-959-4910, Page 67, TB 750-911-1 (Oct 67).

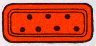


Mounting hardware for the clip includes lockwasher, FSN 5310-550-3715; machine screw, FSN 5305-550-5002; flat washer, FSN 5310-595-6211.

Microphone element, FSN 5965-930-0129.

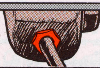
Element cover, FSN 5960-918-2481.

Moisture seal (vapor seal, barrier, moisture shield), FSN 5965-089-7347.



Adhesive for moisture seal, FSN 8030-930-2159.

Connector plug electrical U/229 FSN 5935-992-2035.

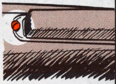


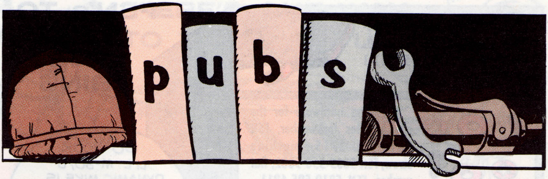
Packing nut for microphone cord, FSN 5975-963-6313.

Gasket (top ring, over vapor seal), FSN 5330-905-6032.

Gasket (bottom ring, under vapor seal), FSN 5965-060-4133, Page 1, TM 11-5965-265-13P (Sep 62).

Mounting hardware for switch: machine screw, FSN 5305-576-7493; lockwasher, FSN 5310-550-3715; flat washer, FSN 5310-595-6211.





This is a selected list of recent pubs of interest to organizational maintenance personnel. The list is compiled from recent AG Distribution Centers Bulletins. For complete details see DA Pam 310-4 (May 68), and Ch 2 (Aug 68), TM's, TB's, etc.; DA Pam 310-6 (Jul 68), and Ch 2 (Jan 69), SC's and SM's; DA Pam 310-7 (Oct 68), MWO's.

TECHNICAL MANUALS

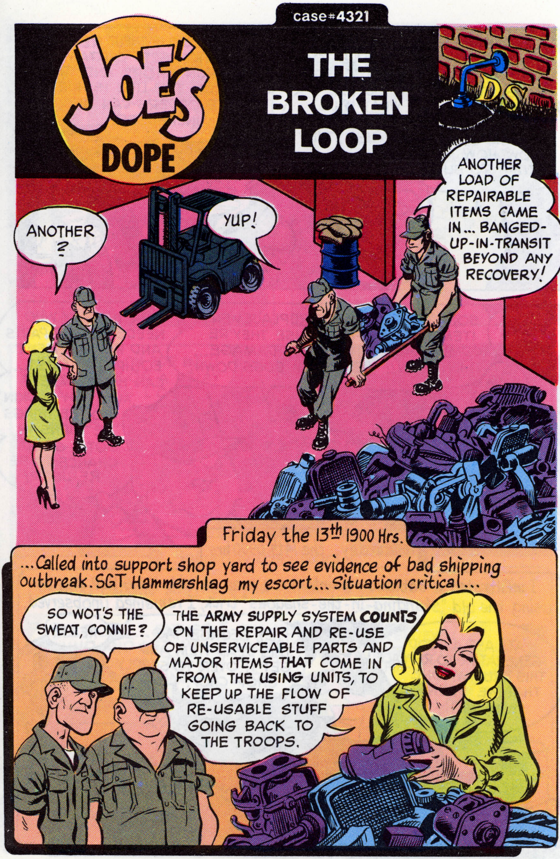
TM 3-1040-251-15 C2, Dec, Test Set for M5 6,000 PSI Hydrostatic & Volumetric Riot Control Agent Disperser Flame Thrower.
TM 3-4230-204-12, Nov, 1½ Qt ABC-M11 DS2 Decon App.
TM 5-2420-219-15, Sep, Indus DED Wheeled Tractor.
TM 5-2805-256-14, Sep, 1A08-1, 1A08-2, 1A08-3 Mil Std 1½ HP Gas Eng.
TM 5-3610-234-13, Oct, Paper Cutting Machine Harris-Seybold Mdl CHE 35 ½ Inch.
TM 5-3655-210-12, Oct, Storage and Charging Conversion Unit 16,000 Lb Cap Cardox E-46750.
TM 5-3805-243-15, Oct, 10,500 Lb Cap DED Scoop Type Loaders.
TM 5-3810-202-10, Oct, 20 Ton 6x6 GED Crane-Shovel Carrier Four Wheel Drive Auto Mdl MUC.
TM 5-3895-281-15, Nov, 2,100,000 BTU/Hr Elec Mtr Drvn Trailer Mtd Hot Oil Heater.
TM 5-4120-278-25P, Nov, 36,000 BTU Floor Mtg Air Conditioner.
TM 5-4310-214-15, Nov, 15 CFM High Pressure Air Compressors.
TM 5-4310-277-25P, Nov, GED Tank Mtd 175 PSI 15 CFM Air Recip Compressor.
TM 5-4310-332-15, Dec, 15 CFM Air Compressors.
TM 5-4310-333-14, Oct, 1.5 CFM 50 PSI Elec Mtr Drvn Base Mtd Recip Air Compressor.
TM 5-4320-208-12, Oct, 125 GPM GED Centrifugal Pump.
TM 5-4330-215-12, Nov, 50 GPM Grnd Mtd Liq Fuel Separator Filter.
TM 5-4620-201-15, Nov, 150 GPH Water Purif Distil Unit.
TM 5-4930-201-20P, Oct, Lubricating & Servicing Unit 12 CFM Air Comp Cap GED.
TM 5-4930-206-20P, Nov, 15 CFM Comp GED Trailer Mtd Lubricating & Servicing Unit.
TM 5-4930-217-24P, Oct, GED Trailer Mtd 23 CFM Comp Lubricating & Servicing Unit.
TM 5-5420-205-15 C1, Nov, Mobile Ferry Assault Bridge.
TM 5-6115-306-25P, Oct, 1.5 KW 60 Cyc Eng Drvn Gen Sets.
TM 5-6115-323-15 C2, Nov, 1.5 KW 60 Cyc Gen Sets.
TM 5-6115-424-20P, Nov, 60 KW 60 Cyc Gen Sets.
TM 5-6115-435-12, Oct, 10 KW AC DED Gen Sets.
TM 5-6115-456-15, Oct, 150 KW & Up Eng Drvn Gen Sets.
TM 5-6675-227-15, Nov, Surveying Equip.
TM 5-6675-282-25P, Nov, Mtd Type Dumpy Style Surveying Level.
TM 9-1440-250-15P/6/1, Oct, Nike-Herc Nike-Herc Imp.
TM 9-1450-380-20P, Dec, Pershing.
TM 9-2300-216-10, Oct, M107 175-MM SP. Gun, M110 8-in Howitzer.
TM 9-2320-218-20, Aug, M151, M718 ¼ Ton.
TM 9-2320-244-20P, Oct, M715, M725 1¼ Ton Truck.
TM 9-2350-201-12 C12, Oct, M41, M41A1, M41A2, M14A3 Tanks.
TM 9-2350-300-20, Nov, XM163 SP 20MM AA Gun.
TM 9-3064 C5, Oct, M29E1 81-MM Mortar on M23A3 Mount.
TM 9-4933-210-14, Dec, AN/TSM-100 Elect Sys Test Set for 20-MM Towed AA Gun.
TM 9-4935-250-25P/4/1, Dec, Nike-Herc Nike-Herc Imp.
TM 9-4935-467-12P, Dec, Infrared Trans Alinement Sets for Shillelagh.
TM 9-6650-212-12 (Reinstatement), Sep, M49 Observation Telescope.
TM 9-6920-425-20P, Oct, Redeye.
TM 9-7204 C9, Oct, M52, M52A1 105MM Howitzer.
TM 9-7218 C10, Oct, M42, M42A1 Twin 40.
TM 10-1670-222/23 C1, Dec, Air Deliv Equip Cargo Parachute.
TM 10-3610-202-25P, Dec, Printing & Repro.
TM 11-3895-211-12, Nov, RL-189/G Mtr Drvn Cable Reeling Mach.
TM 10-3930-603-20P, Nov, Army MHE 201 GED DPB 4,000 Lb Whse Whld Tractor.
TM 10-5410-222-23P, Oct, Inflatable Shelter w/Airlock.
TM 10-7300-200-12, Oct, 5,500 BTU/Hr 1-Burner Gasoline Stove; 5,000 BTU/Hr 2-Burner Gasoline Stove; Small Detachment Field Cooking Outfit 1-Burner Gasoline Stove.
TM 10-8400-201-23, Dec, Repair Procedures for Clothing & Individual Equip Maint of Sleeping Bag & Case M-1949.
TM 11-5820-610-15, Nov, AN/TRC-133 Radio Terminal Set.
TM 11-5855-217-12, Oct, Infrared AN/VSS-3 Searchlight Set.
TM 11-6720-240-12, Oct, 45 Crown Graphic CF-93 Camera.
TM 11-6730-231-12, Oct, Graflex School Master Projectors 500 and 750.
TM 55-1510-204-20-2, Oct, OV-1.
TM 55-2320-209-10-1, Nov, M49 2½ Ton 1200 Gal Tank Truck.

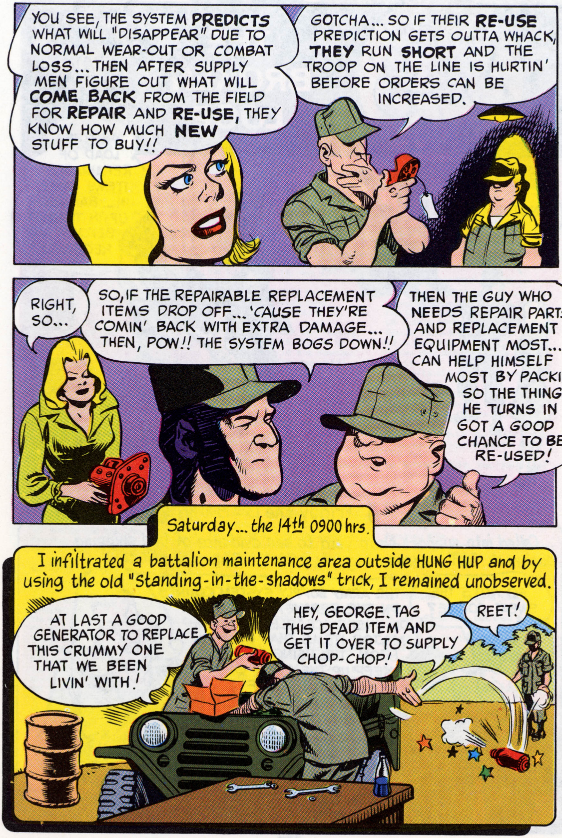
LUBRICATION ORDERS

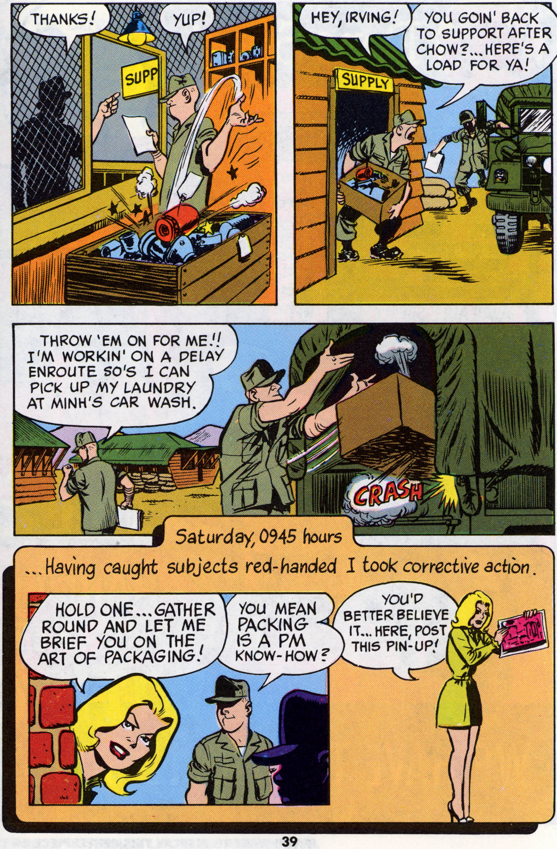
LO 5-3655-210-12, Dec, Storage & Charging Conversion Unit 16,000 Lb Cap Cardox E-46750.
LO 5-3810-289-12-2, Dec, 12½ Ton Crawler Crane-Shovel.
LO 5-3820-238-12-2, Oct, GED Percussion Well Drilling Machine Bucyrus-Erie Co. 22W.
LO 5-6115-413-12, Nov, 7.5 KW DC GED Gen Sets.
LO 5-6115-449-12, Oct, Mil Design 6 Hz 30 KW Gen Set Mdl SF-30MD/CIED.
LO 9-2300-257-12, Nov, M113A1 Carrier Family.
LO 9-2320-230-12, Sep, M656 Cargo Truck XM757 Tractor XM791 Expansible Van.
LO 9-2350-300-10, Dec, XM163 SP AA 20MM Gun.

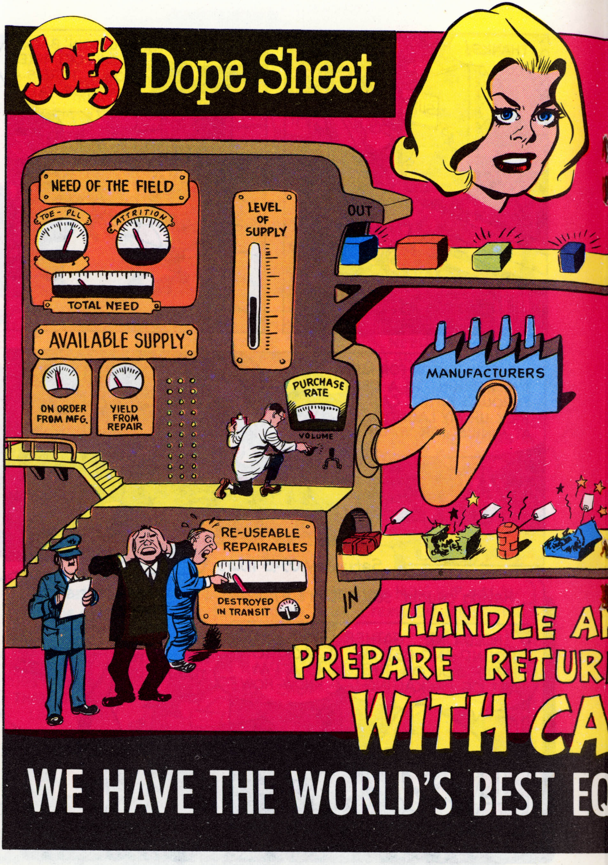
MISCELLANEOUS

DA Cir 385-21, Dec, Safe Oper of M151 Utility ¼ Ton Truck.
FM 23-82 C2, Dec, M40A1 106-MM Recoilless Rifle.
MWO 9-1240-200-30/3 C1, Dec, M48A3, M60, M60A1 Tanks & M728 CEV.
MWO 9-2300-216-30/24, Dec, M107 Gun, M110 Howitzer.
SB 700-20, Jan, Adopted Items of Materiel.
SC 3433-95-CL-A08, Oct, Lead Burning Welding Torch.
SC 3610-97-CL-E16, Nov, Diazo Process Repro Set.
SC 4931-95-CL-A16, Oct, Elect Maint Tool Kit XM1163 20MM SP Antiaircraft Gun.
SC 4940-97-CL-E39, Sep, LARC V Org Maint Tool Set.
SC 5180-97-CL-E32, Oct, Tool Kit for 5-Ton LARC V Amphib Lighter, 15-Ton LARC XV Lighter.
SC 5420-97-CL-E41, Oct, Aluminum 38 Ft Lg Fixed Bridge.
TB 750-236 & Errata Sheet, Sep, Calibration Requirements for the Maint of Army Materiel.
TB 750-651, Nov, Use of Antifreeze Solutions & Cleaning Compounds in Eng Cooling Sys.


case#4321
JOE'S DOPE
THE BROKEN LOOP
DS
ANOTHER ?
YUP!
ANOTHER LOAD OF REPAIRABLE ITEMS CAME IN... BANGED-UP-IN-TRANSIT BEYOND ANY RECOVERY!
Friday the 13th 1900 Hrs.
...Called into support shop yard to see evidence of bad shipping outbreak. SGT Hammershlag my escort... Situation critical...
SO WOT'S THE SWEAT, CONNIE?
THE ARMY SUPPLY SYSTEM COUNTS ON THE REPAIR AND RE-USE OF UNSERVICEABLE PARTS AND MAJOR ITEMS THAT COME IN FROM THE USING UNITS, TO KEEP UP THE FLOW OF RE-USABLE STUFF GOING BACK TO THE TROOPS.


YOU SEE, THE SYSTEM **PREDICTS** WHAT WILL "DISAPPEAR" DUE TO NORMAL WEAR-OUT OR COMBAT LOSS... THEN AFTER SUPPLY MEN FIGURE OUT WHAT WILL **COME BACK** FROM THE FIELD FOR **REPAIR** AND **RE-USE**, THEY KNOW HOW MUCH **NEW** STUFF TO BUY!!
GOTCHA... SO IF THEIR **RE-USE** PREDICTION GETS OUTTA WHACK, **THEY** RUN **SHORT** AND THE TROOP ON THE LINE IS HURTIN' BEFORE ORDERS CAN BE INCREASED.
RIGHT, SO...
SO, IF THE REPAIRABLE REPLACEMENT ITEMS DROP OFF... 'CAUSE THEY'RE COMIN' BACK WITH EXTRA DAMAGE... THEN, POW!! THE SYSTEM BOGS DOWN!!
THEN THE GUY WHO NEEDS REPAIR PARTS AND REPLACEMENT EQUIPMENT MOST... CAN HELP HIMSELF MOST BY PACKIN' SO THE THINGS HE TURNS IN GOT A GOOD CHANCE TO BE RE-USED!
Saturday... the 14th 0900 hrs.
I infiltrated a battalion maintenance area outside HUNG HUP and by using the old "standing-in-the-shadows" trick, I remained unobserved.
AT LAST A GOOD GENERATOR TO REPLACE THIS CRUMMY ONE THAT WE BEEN LIVIN' WITH!
HEY, GEORGE. TAG THIS DEAD ITEM AND GET IT OVER TO SUPPLY CHOP-CHOP!
REET!


THANKS!
YUP!
SUPP
HEY, IRVING!
YOU GOIN' BACK TO SUPPORT AFTER CHOW?... HERE'S A LOAD FOR YA!
SUPPLY
THROW 'EM ON FOR ME!! I'M WORKIN' ON A DELAY ENROUTE SO'S I CAN PICK UP MY LAUNDRY AT MINH'S CAR WASH.
CRASH
Saturday, 0945 hours
...Having caught subjects red-handed I took corrective action.
HOLD ONE... GATHER ROUND AND LET ME BRIEF YOU ON THE ART OF PACKAGING!
YOU MEAN PACKING IS A PM KNOW-HOW?
YOU'D BETTER BELIEVE IT... HERE, POST THIS PIN-UP!

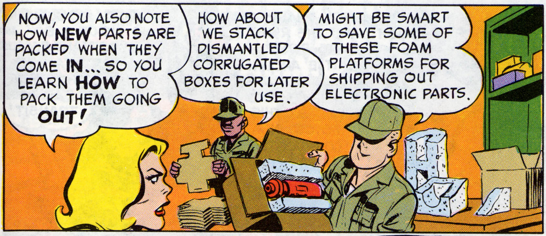


IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BUL

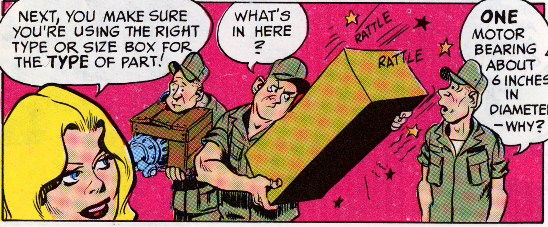
IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BULLETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.

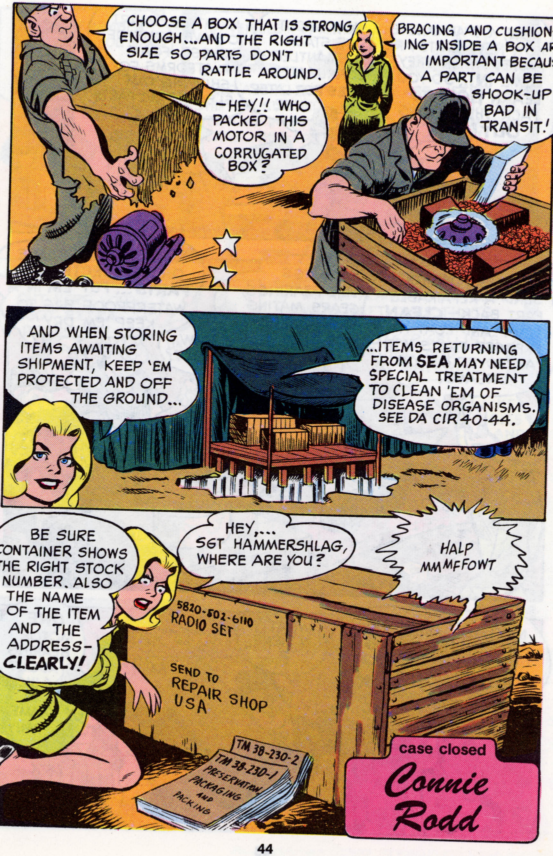
LLETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.

FIRST... REMEMBER THE PARTS YOU SEND BACK TAKE A COMPLICATED ROUTE!
BY VEHICLE... BY AIR OR BY TRANSPORT
AND ALONG THE WAY THEY ARE LIFTED, SHIFTED, STACKED, SHOVED, AND STORED...SO, EVERYONE INVOLVED HAS TO HANDLE 'EM WITH CARE... THIS CARE STARTS WITH **YOU**!
OUT HERE YOU'VE GOT **EXTRA** PROBLEMS!
UNTRAINED LOCAL LABOR
WEATHER
TERRAIN
YEAH
YEAH
SO, YOU PLAN AHEAD... SAVE EVERY LEFT-OVER THAT'S RE-USABLE AS PACKING. SB 38-100 (SEP 68) LISTS PRESERVING AND PACKAGING MATERIAL.
Y'MEAN, LIKE CONTAINERS, BITS OF BLOCKING AND CUSHIONING STUFF?
REMEMBER-- MANY REPAIRABLES ARE PACKED IN METAL, WOOD AND PLASTIC RE-USABLE CONTAINERS FOR JUST SUCH PURPOSE AND YOUR CONVENIENCE. THEY ARE IDENTIFIED "RE-USABLE CONTAINER-DO NOT DESTROY" AND ARE COVERED BY FSN'S. AR 725-12 HAS THE WORD.
REUSABLE CONTAINER DO NOT DESTROY


NOW, YOU ALSO NOTE HOW NEW PARTS ARE PACKED WHEN THEY COME IN... SO YOU LEARN HOW TO PACK THEM GOING OUT!
HOW ABOUT WE STACK DISMANTLED CORRUGATED BOXES FOR LATER USE.
MIGHT BE SMART TO SAVE SOME OF THESE FOAM PLATFORMS FOR SHIPPING OUT ELECTRONIC PARTS.

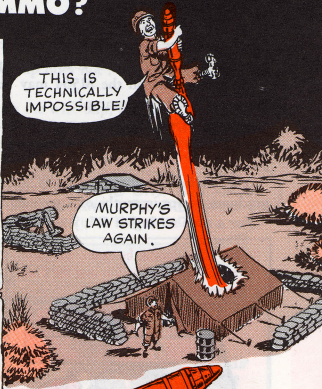
NOW BEFORE YOU SEND A REPAIRABLE PART BACK—CLEAN IT UP AND COAT ITS EXPOSED PARTS WITH APPROVED OIL OR GREASE.
THINGS LIKE BEARINGS, GEARS, MATING PARTS...CHECK!!?
HOW ABOUT?
NO NO! DON'T GREASE OR DIP ELECTRICAL PARTS... PUT 'EM IN A WATERPROOF BAG TO KEEP 'EM DRY!
PRESERVATIVE


NEXT, YOU MAKE SURE YOU'RE USING THE RIGHT TYPE OR SIZE BOX FOR THE TYPE OF PART!
WHAT'S IN HERE?
RATTLE
RATTLE
ONE MOTOR BEARING ABOUT 6 INCHES IN DIAMETER—WHY?


CHOOSE A BOX THAT IS STRONG ENOUGH...AND THE RIGHT SIZE SO PARTS DON'T RATTLE AROUND.
BRACING AND CUSHIONING INSIDE A BOX ARE IMPORTANT BECAUSE A PART CAN BE SHOOK-UP BAD IN TRANSIT!
–HEY!! WHO PACKED THIS MOTOR IN A CORRUGATED BOX?
AND WHEN STORING ITEMS AWAITING SHIPMENT, KEEP 'EM PROTECTED AND OFF THE GROUND...
...ITEMS RETURNING FROM **SEA** MAY NEED SPECIAL TREATMENT TO CLEAN 'EM OF DISEASE ORGANISMS. SEE DA CIR 40-44.
BE SURE CONTAINER SHOWS THE RIGHT STOCK NUMBER. ALSO THE NAME OF THE ITEM AND THE ADDRESS– **CLEARLY!**
HEY,... SGT HAMMERSHLAG, WHERE ARE YOU?
HALP MMMFFOWT
5820-502-6110
RADIO SET
SEND TO
REPAIR SHOP
USA
TM 38-230-2
TM 38-230-1
PRESERVATION PACKAGING AND PACKING
case closed
Connie Rodd

FIREPOWER

HANDLING ILLUMINATING AMMO?



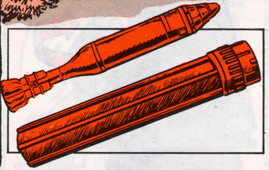
Replace 'em easy-like. That's the watchword when you use the cartridge container to protect the propellant charge on an M301-series 81mm illuminating cartridge.

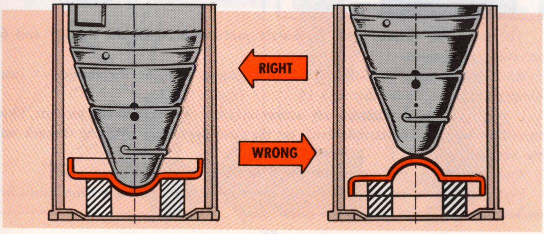
Spelled out the caution says: **Never let the base of the cartridge hit hard on the bottom of the container.**

If the metal disk (which normally supports the fuze end of the cartridge) rolls out of the container, be sure you replace it in its original position . . . point down.

If the point of the metal disk is up, and you slip the cartridge into the container fins first, the point on the metal disk can act like a firing pin. As you can imagine, igniting the propellant in the container would be kinda messy for you.

And, any time you must repack the cartridge be sure to slip it into the container fuze end first, so the fuze nests into the metal disk.





TIME IT RIGHT . . .

THE M564 MTSQ FUZE

Anybody can forget.

So, if it's been a good while since you've set an M564 mechanical time and superquick fuze, best polish up on your technique. The vernier scale scoop you need is in Fig 5-57, TM 9-1300-203 (Apr 67).

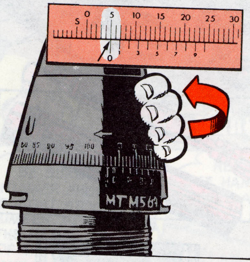
Also, the scale on the M564 may be a mite different from other scales you know real well. For example:

On the M564 the lower cap rotates. Its 0-to-100 scale is in 1-second increments, and the increments are numbered every 5 seconds. The cap rotates clockwise only.

The stationary vernier scale is located on the fuze body assembly, and its graduations are in tenths of a second.

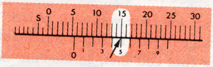
For a time setting of 5.5, you work it like this—

1. You set the seconds by turning the lower cap clockwise until its 5 is over the 0 on the vernier scale.



2. Then to set the fractions (tenths of a second) you use the vernier scale. Just continue to turn the cap (clockwise) until the 5 on the vernier scale lines up with the cap's graduation, which is above and to the immediate right of the .5 reading on the vernier scale.

You'll end up with the scale reading like this:



The 0 on the vernier scale is exactly midway between the cap's 5 and 6 seconds graduations.

And, in lining up with the cap's graduation to its right, the vernier's 5 just happens to line up with the cap's 15.

If you want superquick impact action only, set the fuze for 100 seconds, like this: Line up the 100 seconds mark on the fuze lower cap with the 0 mark on the vernier scale.

And, remember, you never fire the fuze set on the S (shipping) mark.

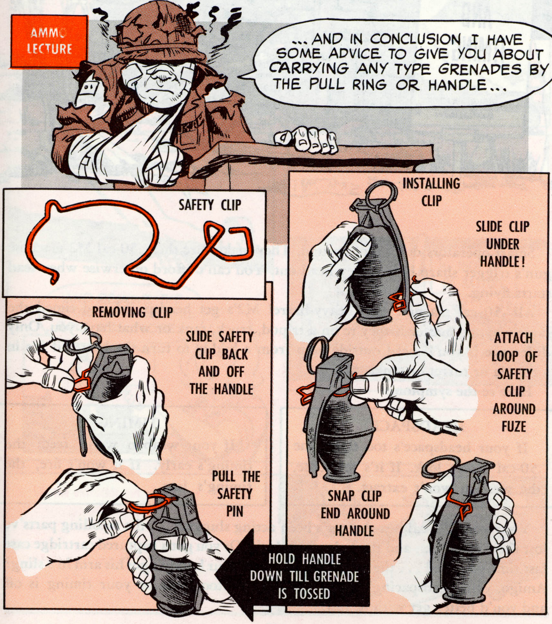
You gotta know exactly how to use the scale. A wrong time setting could be embarrassing . . . not to mention disastrous.

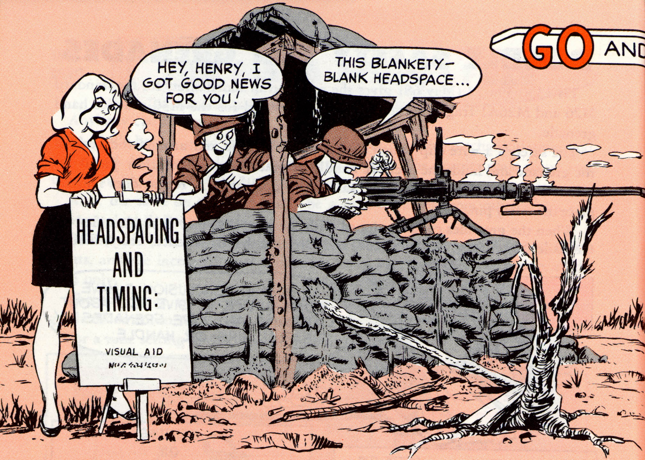
DOUBLE SAFETY FOR GRENADES

TB 1330-394-12 (May 68) gives the scoop on an added safety for the standard M26 and M26A1 fragmentation hand grenades and for the M30 practice hand grenade.

The safety's a wire clip which slips over the handle and around the neck of the grenade and holds the grenade handle in place in case the safety pin is accidentally snagged or pulled. The safety clip does not . . . repeat does not, replace the safety pin.

When the grenades come equipped with the wire clip, they'll be identified as: Grenade, hand, frag, delay, XM61, and Grenade, hand, practice, delay, XM62.





Smart operators don't fool around. They make sure their .50-cal M2 machine gun's trigger sharp before they head out. You can't afford otherwise when lead starts flying.

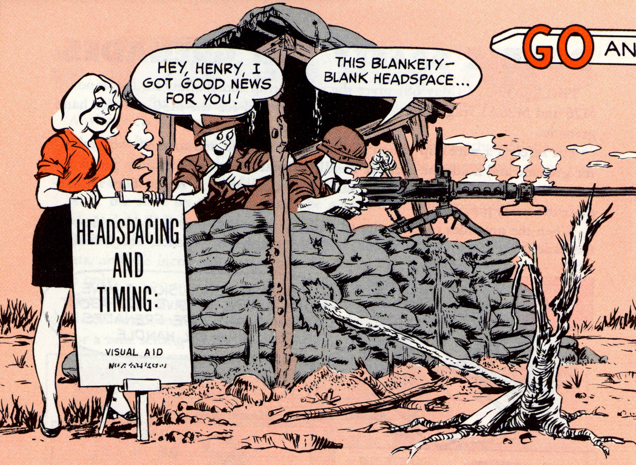
All .50-cal machine gun heavy-barrel M2's get headspaced and timed the same way, no matter if they're on a tripod, truck, tank or what have you. Only difference is you'll need outside help from a buddy to turn the barrel if it's in a cupola or turret or tank.

Here're the symptoms:

HEADSPACE	TIMING
If your headspace's too tight, the .50-cal won't lock. If it's too loose, the weapon won't extract.	If your weapon won't feed, the timing's early. If it won't fire, the timing's late.

Y'say your .50-cal pea-shooter's been acting sluggish . . . the recoiling parts've lost their spunk . . . and the bolt won't lock? Or you got a ruptured cartridge case last time you fired . . . the barrel's a mess and your buddy's got his arm in a sling? Amigo, your headspacing's either too tight or too loose or your timing is off and you'd better get with it, fast!

GO AND FIRE YOUR M2



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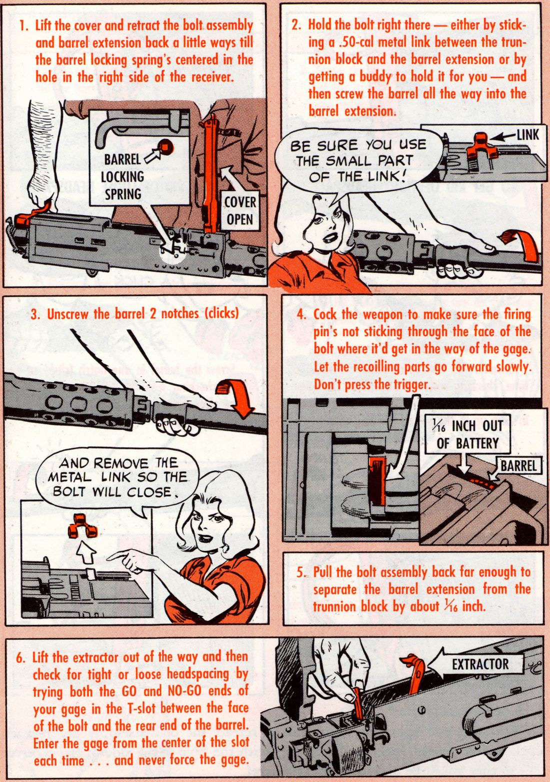
HEADSPACING WITH GO/NO-GO GAGE (FSN 4933-535-1217)

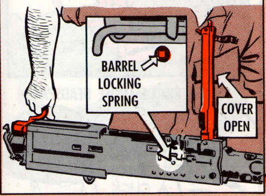


PS MORE

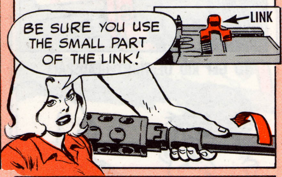
FIRE YOUR M2

HEADSPACING WITH GO/NO-GO GAGE (FSN 4933-535-1217)

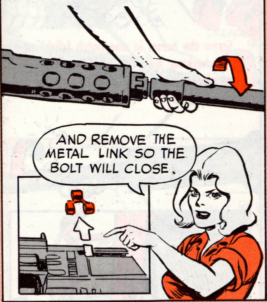
1. Lift the cover and retract the bolt assembly and barrel extension back a little ways till the barrel locking spring's centered in the hole in the right side of the receiver.



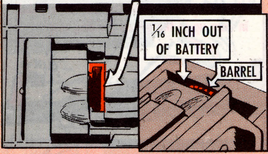
2. Hold the bolt right there — either by sticking a .50-cal metal link between the trunnion block and the barrel extension or by getting a buddy to hold it for you — and then screw the barrel all the way into the barrel extension.



3. Unscrew the barrel 2 notches (clicks)

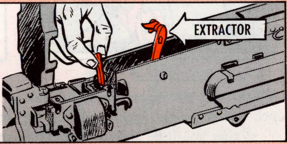


4. Cock the weapon to make sure the firing pin's not sticking through the face of the bolt where it'd get in the way of the gage. Let the recoilling parts go forward slowly. Don't press the trigger.



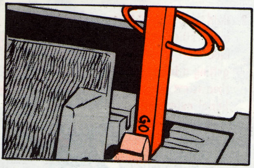
5. Pull the bolt assembly back far enough to separate the barrel extension from the trunnion block by about 1/16 inch.

6. Lift the extractor out of the way and then check for tight or loose headspacing by trying both the GO and NO-GO ends of your gage in the T-slot between the face of the bolt and the rear end of the barrel. Enter the gage from the center of the slot each time . . . and never force the gage.



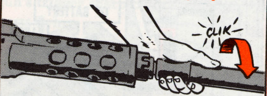
PS MORE

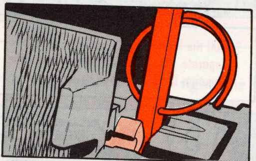
If it's too tight—the GO end won't go in the slot.



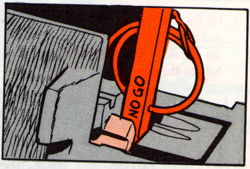
TO GET RID OF TIGHT HEADSPACE:

Unscrew the barrel one notch (click) at a time, checking with the GO end of the gage after every click . . . till the GO end will slide in easy up to the gage's dividing ring.



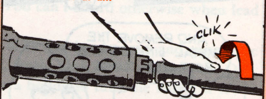


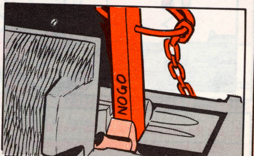
If it's too loose—the NO-GO end does go in.



TO GET RID OF LOOSE HEADSPACE:

Screw the barrel in one notch (click) at a time, checking with the NO-GO end of the gage after every click . . . till the NO-GO end won't enter at all.



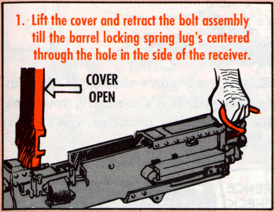


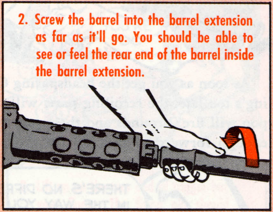
A headspacing hint:

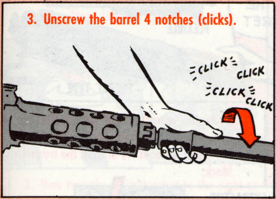
Make sure you insert the metal link or retract the bolt assembly before each click to line up the locking spring lug with the hole in the side of the receiver . . . so that you'll be able to turn the barrel.

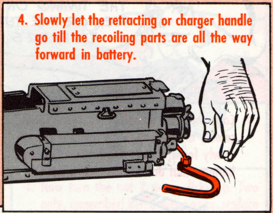
HEADSPACING WITHOUT A GAGE

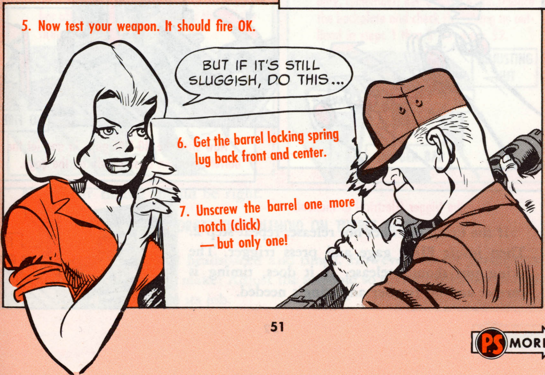
Rule Numbah One: Never headspace without a gage unless you're in· a real pinch!





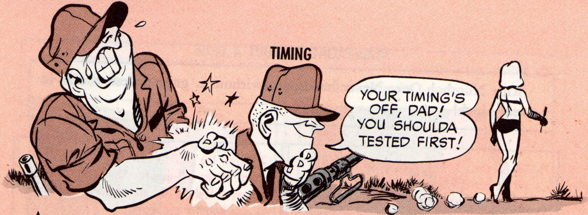




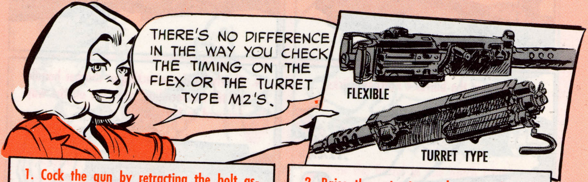


PS MORE

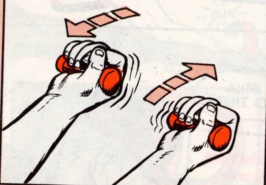
TIMING



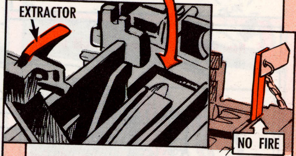
As soon as you get the headspacing OK, test your gun's timing. If the timing's too late, the recoiling parts will get damaged. If it's too early, your weapon will fire 2 rounds and then quit. That's because the extractor won't go far enough forward to pick up the third round.



1. Cock the gun by retracting the bolt assembly all the way to the rear and release slowly forward, to prevent slamming into battery. (But don't press that trigger!)



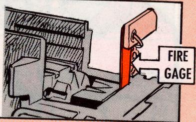
2. Raise the extractor and retract the bolt assembly till the front end of the barrel extension is about 1/16-in from the trunnion block.



Now stick the NO-FIRE gage in and let the barrel extension close slowly on the gage.

3. Press the trigger (Electrical or manual).

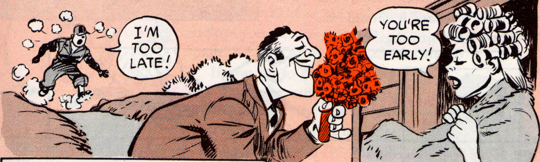
If the firing pin does not release, repeat step 2. Then insert FIRE gage and press trigger. The firing pin should release. If it does, timing is correct and no further adjusting's needed.



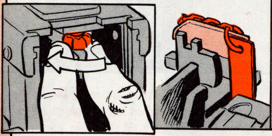
However, if you have **late timing**—The firing pin won't release when the FIRE gage is used.

Or if you have **early timing**—The firing pin does release when the NO-FIRE gage is used.

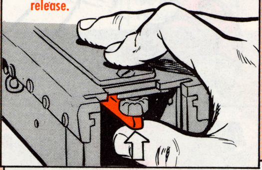
TO CORRECT EARLY TIMING AND/OR LATE TIMING:



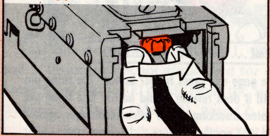
1. Remove the gage and cock the gun as before. Remove the backplate. Turn the adjusting nut to the **left** . . . all the way down. Place the FIRE gage in position.



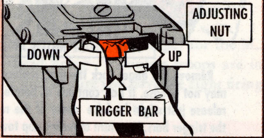
2. Lift up on the rear end of trigger bar with your finger. The firing pin should not release.



3. Now turn the adjusting nut to the right or up 1 click at a time, pulling up on trigger bar after each click. Keep doing this till the firing pin **will** release.



4. Now turn the nut 2 more clicks up. Two only, remember! Remove the gage, replace the backplate and check the timing as outlined in steps 1 thru 3 on page 52.

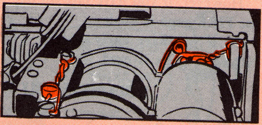


Now your timing should be right.

DON'T FORGET THE SOLENOID ON TURRET TYPES

Great. Now your M2's headspaced and timed. However, on the turret types there's still one big step to make: Adjust the solenoid so that the solenoid plunger is the proper length to do its job.

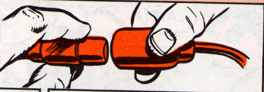
This adjusting business is the same for all turret type M2's, no matter where the solenoid's located.



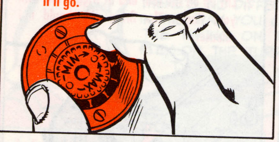
But, before you start adjusting the solenoid, make sure it's attached properly and safety-wired, like your weapon's TM says it should be.

Now, for adjusting:

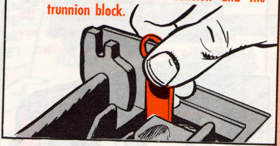
1 Connect the power source.



2 Push in the adjusting cap and turn it to the **right** toward the MIN position as far as it'll go.



3 Cock the weapon and stick the FIRE gage between the barrel extension and the trunnion block.



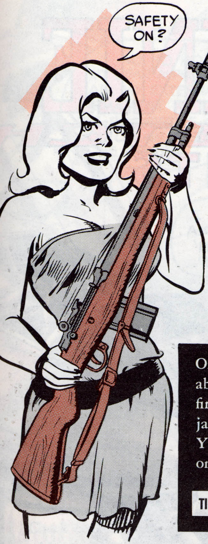
4 Turn the adjusting cap to the **left** toward the MAX position and try to fire, using the firing button, not the manual trigger. If the firing pin won't release, keep on turning the adjusting cap toward MAX one notch at a time, trying to fire at each notch till the firing pin does release.

TURN . . . ONE NOTCH AT A TIME . . . UNTIL THE PIN RELEASES

Remove the gage. Cock the gun, replace the gage and press trigger button. The firing pin may not release. If not, continue as before until it does release. Could be the first firing pin release just might be false 'cause of the repeated smacking of the solenoid plunger against the trigger bars. Now turn adjusting cap toward MAX another 4 more clicks. (Four clicks only!)

5 Now recock the weapon and — with the FIRE gage still in position — press trigger button. The firing pin will release — and no further adjustment's required.

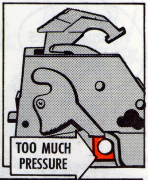
OK, now your solenoid's all set. Replace the cover and put the electrical fire control box switch in the OFF position.



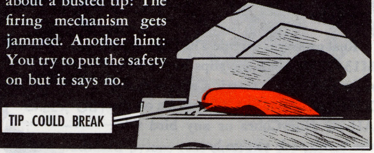
OLD STORY, EVER NEW?

You're right, if you're talking about the need to check your M14 or M14A1 rifle to be sure it's cocked before you put the safety on. That's what it says on page 2-2 of TM 9-1005-223-20 (May 67).

If you go to put the safety on with the rifle uncocked, you can bust the tip of the safety. That's because the safety tip rides against the bottom of the slot in the hammer . . . and pulling on the safety can break the tip.



One thing that clues you about a busted tip: The firing mechanism gets jammed. Another hint: You try to put the safety on but it says no.



60-MM MORTAR AMMO

Pass the word—The M50A2E1, 60-MM TP (training cartridge) for the M_ and M19 mortars is not authorized for overhead firing . . . unless troops are in tanks more than 100 yards from the line of fire. Be sure you have the right firing table—FT 60-L-4 (Mar 67), with Ch 1.

PURGING KIT, ANYONE?

You artillery types authorized to purge and charge your own fire control equipment need 2 pubs which dish out the poop on Purging Kit, FSN 4931-065-1110. TM 750-116 (Aug 67) with 1 change tells you how to use it. SC 4931-95 CL-J54 (18 Jun 68) gives you dope on component replacement and expendability. Keep a copy of each handy.

XM18 AND XM18E1 SUBSYSTEMS:

MINNIE in STRETCH PANTS

Real groovy is Minnie The High Rate M134 Gun when she slips into a skin-tight pod for the starring role with the XM18 and XM18E1 subsystems on the AH-1G HueyCobra or any bird with the bomb rack to tote her.

Under the skin, o'course, all Minnies are pretty much alike. That's why most of the poop in PS 179 still goes.

But this podded Minnie's got some things about her that'll challenge your PM prowess. Like, she carries her own battery power source and a drum-full of 7.62-MM ammo that feeds through a linkless system; she needs 4-way timing—things like that. These specialties are covered in TM 9-1005-257-series pubs. First thing you do, tho, is read the safety precautions on the first page of the subsystem's "bible"—TM 9-1005-257-12 (Nov 67).

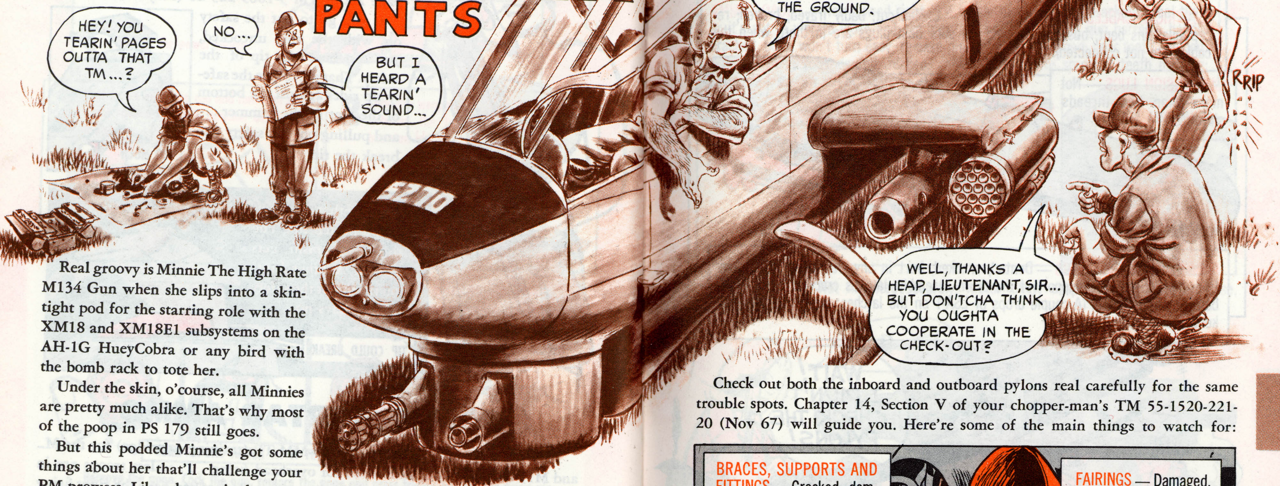
EXTERNAL STORES PYLONS

Cooperation between you 45J armament types and your 67N20 Cobra mechanics is a must here. Normally, this is aircraft ground crew territory, but, when the Cobra packs machine guns and rocket launchers you 45J's want to be awfully sure these pylons are in shape.

AIR MOBILITY

XM18 AND XM18E1 SUBSYSTEMS:

MINNIE in STRETCH PANTS



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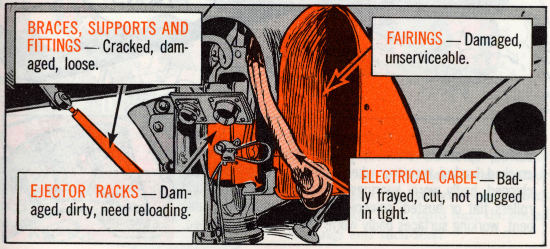
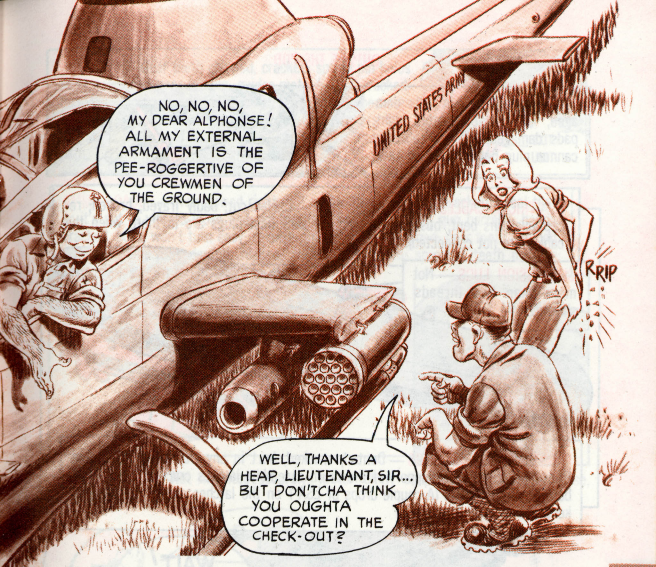
Check out both the inboard and outboard pylons real carefully for the same trouble spots. Chapter 14, Section V of your chopper-man's TM 55-1520-221-20 (Nov 67) will guide you. Here're some of the main things to watch for:



PS MORE



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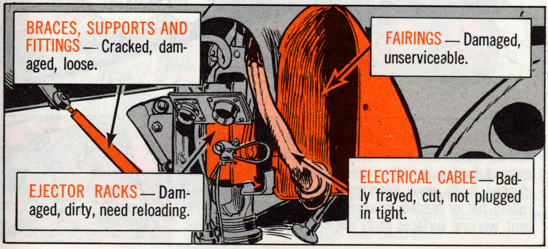
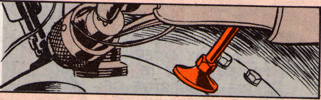


PS MORE

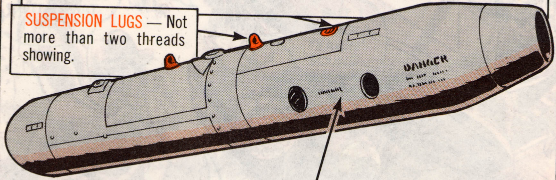
OUTSIDE THE POD

SWAY BRACES — Jam nuts damaged, loose, not adjusted right; pads damaged; release cable on cannon plug not secured on rack.

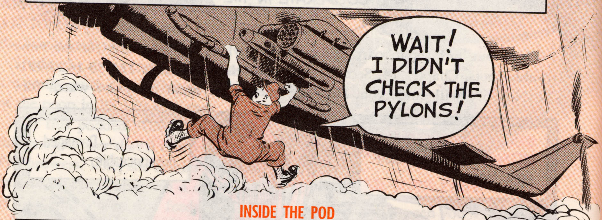


ELECTRICAL CABLES AND RECEPTACLES — Cables cut, badly frayed, broken; receptacle pins bent, busted, corroded (be sure dust plugs are in there when the cables are not connected).

SUSPENSION LUGS — Not more than two threads showing.

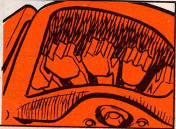


FRONT AND AFT FAIRINGS — Dented, cracked, hurt in any way that'd keep 'em from mating with the support of the drum assembly; latches cracked, bent, hook bent or straightened. (A couple drops of LSA-T on the latches every so often will keep you in good humor.)

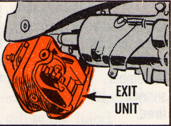


INSIDE THE POD

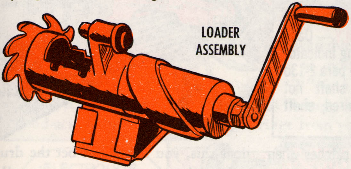
MAU-57A/A FEEDER — Gear teeth worn, chipped, busted, burred; sprockets cracked; guides bent, welded areas cracked, busted; conveyor wheel cracked, wheel gear teeth chipped, badly worn; bearings pitted, corroded; balls and rollers flat or busted; solenoid damaged; clearing cranks bent, working surfaces badly worn; wheel support cracked.

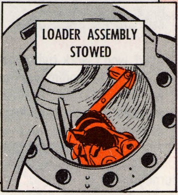


EXIT UNIT—Gear teeth chipped, cracked; spring pin holes in sprocket and gear too big; guides metal-fouled, cracked, badly worn in spots; gimbal cracked, bent, busted; bearings surface-cracked, pitted, corroded; balls and rollers flat, busted, corroded; retainer or cage damaged; shaft twisted, bent.

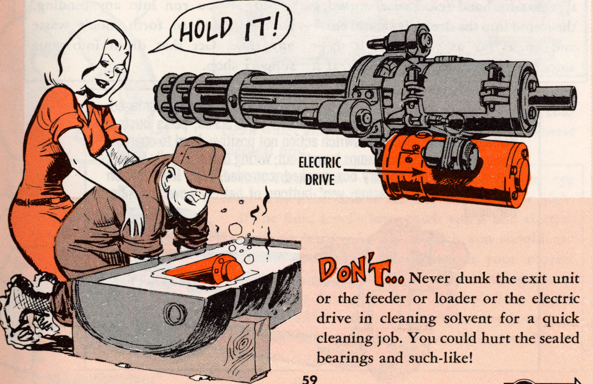


AMMO LOADER—Not stowed right (it'd better be pinned and bracketed real tight or it's apt to vibrate loose and get battered bad by spinning gun barrels); handle cracked, bent, won't turn easy; release pin and chain damaged; gear teeth chipped, cracked; push rods dented, nicked; rollers badly worn; sprocket teeth missing; spring holes worn too big.





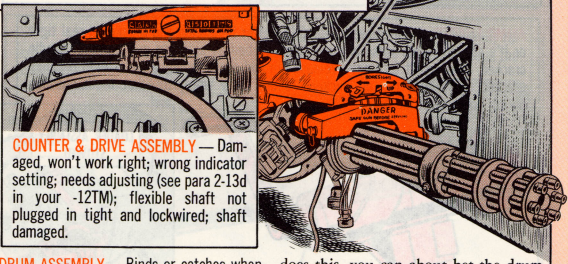
ELECTRIC DRIVE—Not mounted securely; motor dirty; adapter and connector loose, damaged, dirty.



DON'T... Never dunk the exit unit or the feeder or loader or the electric drive in cleaning solvent for a quick cleaning job. You could hurt the sealed bearings and such-like!

M134 GUN — Barrels dirty, recoil adapters not pinned tight to gun and yoke assembly; gun ball mount worn (put a few drops of LSA-T on it when installing the gun — it's under terrific friction when those barrels start spinning). And, remember, this M134 Minnie's gotta have a complete servicing job every day — or after every 10,000 rounds fired.

GUN SUPPORT ASSEMBLY — Cracks and breaks in beam and yoke; paint chipped, flaked.



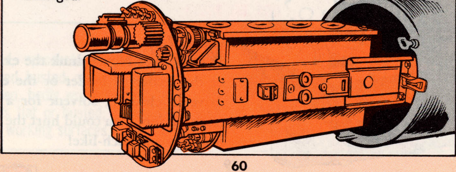
COUNTER & DRIVE ASSEMBLY — Damaged, won't work right; wrong indicator setting; needs adjusting (see para 2-13d in your -12TM); flexible shaft not plugged in tight and lockwired; shaft damaged.

DRUM ASSEMBLY — Binds or catches when turned by hand.

Tip: Take a dummy cartridge, place it in the exit unit, turn the exit unit sprocket by hand (clockwise) to work the round into the drum. It should enter and go as far as you want it to — smoothly, no binding or jamming. If it does this, you can about bet the drum unit and exit assembly are installed OK, are timed right and in good working order.

But, if you run into any binding, jamming, and so forth, don't waste any time. Get that drum into your support shop.

BATTERY & CONTROL ASSEMBLY — Support assembly damaged, won't slide out easy; control panel dented, cracked; parts busted, damaged, loose; electrical switch action not positive, hard to operate; lenses missing, busted; lamps burned out; wiring harness badly frayed, insulation busted; battery box cracked, corroded; cells leak, low on electrolyte, need replacing; vent buttons of battery cover missing, damaged.



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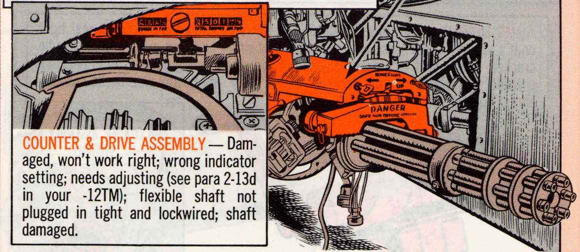

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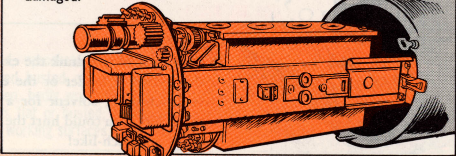


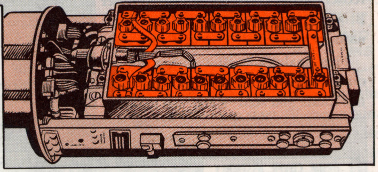
Can't emphasize enough that you keep close tabs on the battery. This means keeping it clean, checking the cells regularly for electrolyte level (should be about 1/8 inch above the top of the cell plates when fully charged) and checking the battery voltage with a voltmeter before every mission.

'Nother thing: Keep the vent plugs in place at all times except when inspecting or adjusting the electrolyte level. Else, the air will dilute the juice!

Checking electrolyte level by eye is not easy when the cells are in the battery box. So, unless you can see for sure, try one of these methods — on all 22 cells, too:

Cell Installed — Use plastic or wood — not metal, and not a lead pencil either — and push it down to the bottom of the "V". The end of the "dipstick" should come out wet. If it comes out bone-dry, you need more fluid. (CAREFUL: Use potassium hydroxide electrolyte only if it's available.)

Remember, the electrolyte level should be at most 1/8 inch above the cell plates. This'd be just to the bottom of the "V" in a fully charged cell. If it's above that level, remove the excess with a clean syringe that's never been used on a lead-acid battery. You can get a syringe from your battery shop.



WARNING: If you spill any battery fluid on your hands or any other skin, flood the spots with cold clean water and report on the double to your nearest medical unit.

Cell Removed — Hold the cell straight at eye level. You'll be able to see easy if it's low or high.

If the fluid level's low, natch you'll add electrolyte, if it's handy. But in a pinch you should use distilled water (keep friendly with your nearest medic!) or pure rain water or plain drinking water, in that order. However, if the battery's been tipped over and the cells are dry, turn the battery in to your local battery shop — the pro in the know! Never fuss with it yourself.

PS MORE

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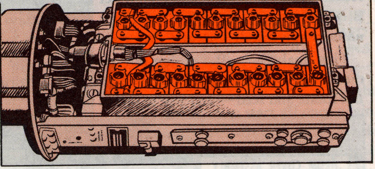

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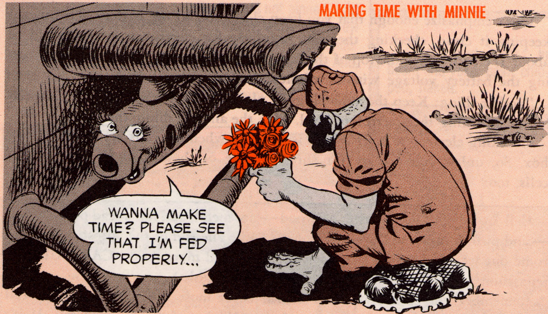
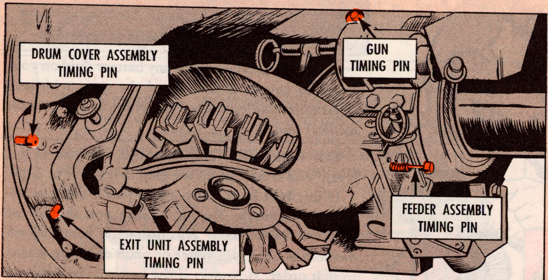


Nobody makes time with this baby unless he feeds her just right. Meaning . . . you've got to synchronize the 4 assemblies—drum cover, exit unit, gun and feeder—that carry ammo through her dainty system. If one of these assemblies is out of step, Minnie's liable to have a convulsion. You time the individual units as you install 'em, and then check regularly to see that they're still timed.

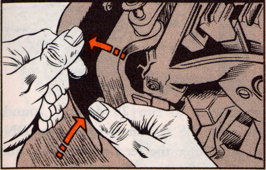
First, make sure all 4 timing pin sets are in shape for their important job. If the pins get sluggish or stick or won't release, the drum or exit unit, say, might not rotate and feed—and you're out of business.



So eyeball the pins regularly for burring, twisting or damaged parts. Keep 'em clean. A few drops of LSA-T on 'em every now and then make them real cooperative.

Now, about that 4-way timing on installation, here's what you do:

1. **Drum Cover** — Push in on the timing pin and turn the drum till the pin goes all the way in.

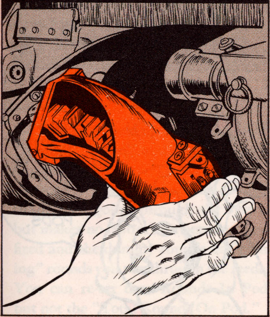


2. **Exit Unit** — Turn the gears of the exit unit assembly till you can push its timing pin in all the way.

Now assemble the exit unit to the drum and double check that the exit unit timing pin will go in when you push the drum pin in. You gotta watch this. The drum has only 2 timing pin holes, while the exit unit has maybe 6. Many times the exit unit pin will go in when the drum pin won't. However, the whole mechanism's never actually in time unless the exit pin will go in at the same time you push the drum pin in.

3. **Gun** — Push in on the timing pin and turn the barrels till the pin hits home.

4. **MAU-57A/A Feeder** — Press on the timing pin and turn the feeder till the pin goes in all the way. Now, still holding the feeder pin, install the feeder to the gun . . . and re-check that the gun pin and feeder pin will go in at the same time.



But, heed this: After you've timed each separate pin, make sure you don't turn that assembly till all 4 pins have

been timed. Else you'll foul up the works and have to start all over again.

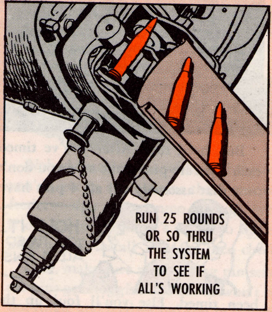
After you're all through, double check that you can push all 4 pins in all the way . . . and that they'll pop out to neutral position when you remove your finger.

OK, that's the timing story for when you're installing the 4 assemblies.

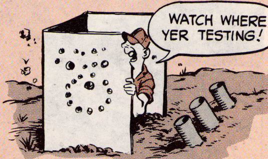
When it comes to loading, remember this: You have to disconnect the feeder from the exit unit every time you load. Then, after loading, you have to re-time the exit unit and feeder and then connect the feeder to the exit unit—both in time.

Incidentally, you always turn the gun barrels in the firing direction to "prime" the feed system.

Tip: Here's a quick check for timing pin damage after a weapon's been serviced and put back into shooting condition. Check the timing in all 6 positions (turn each barrel). If you find binding or something at any position, you can bet some part's been damaged . . . like a bent pin, maybe.

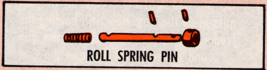


Furthermore, whenever repairs or replacements have been made, it's a



good idea to run 25 dummy rounds through the system (with power ON) to guarantee the feed system, gun and so on are all working OK.

Incidentally, any time you have a jam you should automatically replace the standard roll spring pin (FSN 5315-058-9767) that secures the spur gear to the shouldered shaft in the feeder.

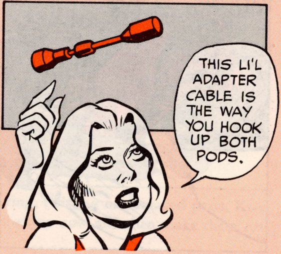


HOW THE -18E1'S DIFFERENT

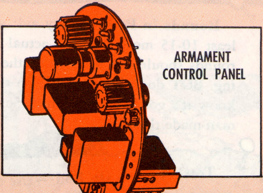
Big difference between the -18 and the -18E1 is electrical—mechanically they're alike. Both operate the gun from the pod battery only. Both use the aircraft battery for control voltage and battery charging power. Both pods will clear themselves.

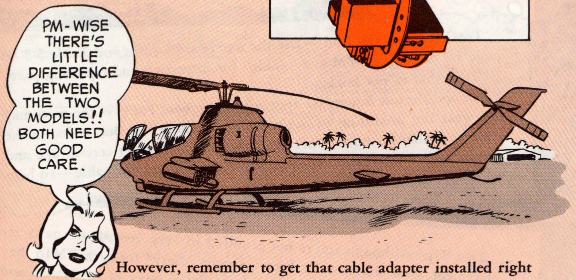
However, the -18E1 uses the aircraft battery for a special added purpose: For power starting the gun—a surge that lasts about 2/10ths of a second. This is where the adapter cable for the -18E1 comes into the picture. It allows both pods to be adapted to the same aircraft cable.

Also, the -18E1 can fire at the dual rate of 2,000 or 4,000 shots per minute, while the -18 can fire only at 4,000 SPM.



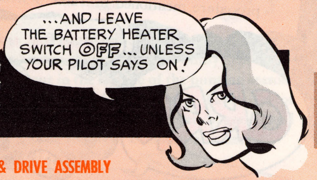
Two toggle switches on the -18E1's armament control panel handle these special features — the High-Low firing rate selector switch that's pre-set before takeoff and the ACFT-BAT power start switch.





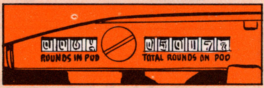
However, remember to get that cable adapter installed right — and never try to take it apart. This is strictly a support chore.

A couple other things to remember, though, when you've got the -18E1:

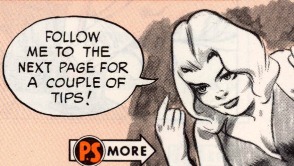


Leave the Power Start Switch UP (Aircraft position). The Cobra's power eases the jolt on the battery when starting the guns up, eases the amperage drain on the battery.

COUNTER & DRIVE ASSEMBLY



Don't get mixed up on the uses of the "Rounds In Pod" and "Total Rounds On Pod" recorders. The first registers the rounds loaded, the second totes up the rounds going through the system, but makes no distinction between those fired and the dummy rounds or "priming" rounds you run through the feeder. You can re-set the "Rounds In Pod" but not the "Total Rounds On Pod."



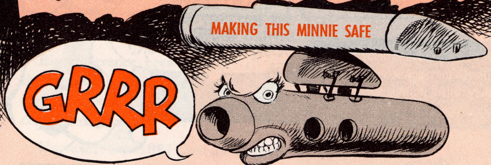
PS MORE

Rounds In Pod—Safety aid: after loading, turn the re-set knob to at least 10-15 more than the actual rounds in the drum. This way all the rounds should get fired when the gunner clears the system before landing. BUT don't bet your life on this. Always treat every M134 like you know it's got live ammo in it. Something could go wrong, this being a man-made thing!

Total Rounds On Pod—Use the tote board figures and Table 3-3 on page 3-7 of your -12 TM as a "guide" for inspecting and replacing parts. GUIDE, that is, not law!

For one, the tote figures are approximate, at best. For two, the parts may not wear out according to the schedule in Table 3-3. But, it does make sense that they'll stand closer watching when they get certain age and mileage on 'em. And that's the purpose of the counter and table—to help you keep your system right up to snuff.

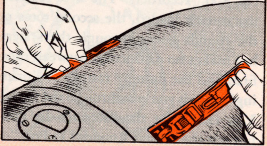
Last Tip: Although you're not required to keep records on parts replacement, some sharp outfits keep a simple "diary" for each XM18 they have (usually just a pad) for noting the serial number of the system and the date and the "Total Rounds On Pod" reading when a part gets the procedure mentioned in Table 3-3. Good idea, wot?



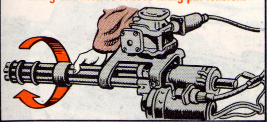
Here's how:

1. Disconnect the aircraft-to-armament pod cable assembly from its receptacle on the pod.

2. Remove the front fairing.

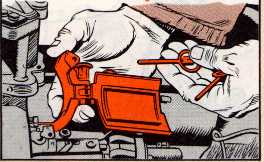


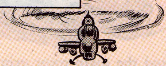
3. Rotate the barrels slightly opposite to firing direction to relieve firing pin tension.



5. Check that all rounds are cleared from the gun.

4. Remove the safing sector and housing cover from the M134 gun.



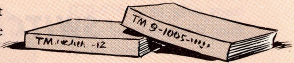


Important!—When your Cobra's carrying several subsystems under its stubby wings and in its nose, it's extra smart to safety 'em all immediately when the ship comes in. A good way: Have 2 guys approach the chopper from opposite wings and safety each system—rocket launcher and/or machine gun—as they walk toward the cabin.

THISA AND THATA

Loading—Don't forget, you put the ammo belt in the loader assembly with the open side of the double loop first. Then watch your fingers (keep 'em clear of the loader sprocket) as you crank away. And, slow down your cranking to a snail's pace when the drum's almost fully loaded to keep from damaging the rearmost round in the drum.

Trouble-Shooting—Time is worth more than P's if your subsystem conks out in the middle of the hunting season. Get very familiar with Table 3-4 of your -12 TM for instant diagnosis and cure for most common ailments.



Live By The LO—Read all the fine print in the LO on pages 3-2 thru 3-5 of the -12 TM and never fluff off on doing what it calls for—when it calls for it.

PUBS—Here're the ones you need:

Subsystem— TM 9-1005-257-12 (Nov 67), TM 9-1005-257-20P (Dec 67), TM 9-1005-257-ESC (Oct 67).

Tools And Equipment—Your subsystem -20P TM and the back pages of the -12 TM show you what you need to be up to snuff.

PS END

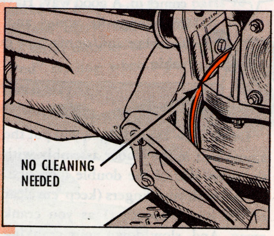
When you spot dirt around the main rotor grip seals on your boonie-based Huey, never clean the seals.

Poke a feeler gage, or even a plastic card, around a seal to try to get dirt out, and you'll cut it. Result—a seal leak. Then you've got to replace the seal for real!

Just eyeball the grip reservoir on the PMD.

If you have oil seepage from the grip follow these limits.

1. Replace the seal if, during a 2-hr flight, the grip reservoir oil level can't be seen.
2. Change the seal on a chopper that has been idle over 24 hours and you can't see any oil level in the grip reservoir.

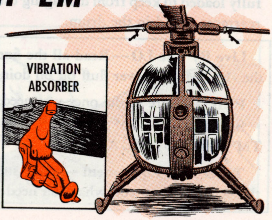


SWITCH 'EM

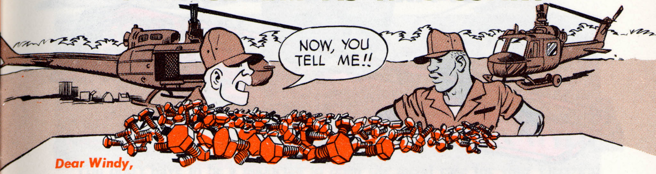
If your DS outfit gives you the green light to change main rotor blades on your Cayuse (OH-6A) remember this point.

The parts pub shows that a new blade doesn't have a vibration absorber.

When you remove the old blades take off the absorbers—put 'em on the new blades.



CHANGE 'EM AS NECESSARY

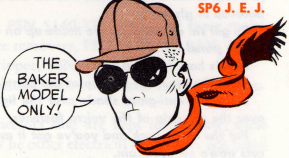


Dear Windy,

What's the story on the main rotor rotating control bolts listed in chap 3, sect IV of our Charlie model TM 55-1520-220-20 (Jan 68)?

Are they 1000-hr time change, or condition items?

SP6 J. E. J.



Dear Specialist J. E. J.,

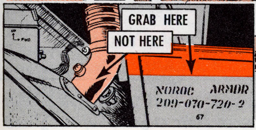
They're condition items that get replaced when they don't pass inspection.

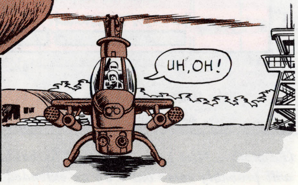
The 1000-hr time change applies only to the Baker model Huey control bolts.

Windy

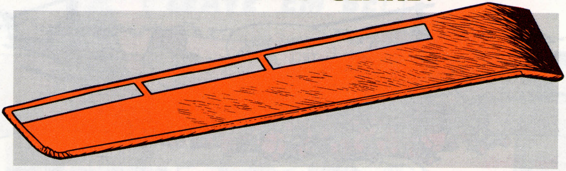
HANDS OFF!

Anytime you pilots and mechanics climb into the HueyCobra pilot's seat watch it. Never plant your hands on heater-ventilator valve, P/N 209-070-476-1, to give yourself a boost or you'll crack it for sure!!





SPARE THE GLARE!



Dear Editor,

We ran into a bit of a problem with the annunciator fault panel lights on our Ute (U-21A). When a light glows it is not easily spotted by the pilot during day-time flying because of glare.

To get rid of the glare we made up an anti-glare shade which is really an extension of the panel cover.

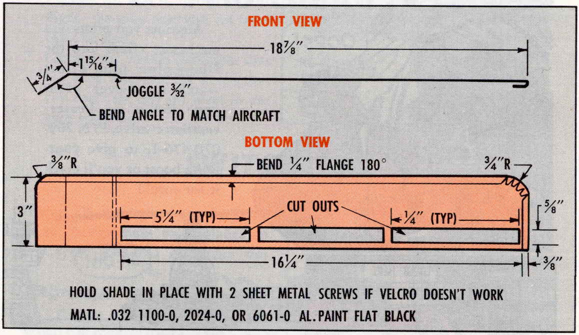
Here's how to put it on.

Take the cover off the top of the panel. The cover is held by velcro fastener strips.

Place the anti-glare shade over the light panel so that the slots in the shade are over the aft strip of the velcro fastener.

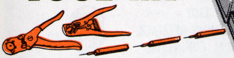
Put the cover back and you've got it made with the shade. And so does the pilot . . . cuts down on eyestrain.

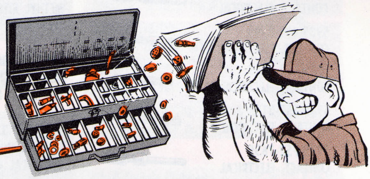
Maj Ralph L. Lehman Jr.
US Army, Hawaii



(Ed Note—Nice going. This field fix has been OK'ed by AVSCOM. New aircraft will probably come out with an extended panel cover to get rid of the glare.)

ELECTRICAL CONNECTOR TOOL KIT





You don't have to be a magician to open the metal case for your Electrical Connector Tool Kit, FSN 5180-876-9336, and find it empty. But it takes a good man to open it up and find it filled with the necessary electrical connectors for his equipment.

The kit is made up of a metal case, FSN 5140-772-9655, and these tools: Crimping tool, FSN 5120-251-3990; three removers, FSN 5120-797-8495, 5120-797-8494, 5120-391-1710; and wire stripper, FSN 5110-268-4224.

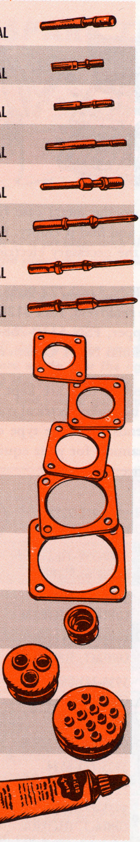
You have this kit in both the organizational No. 1 Common and No. 2 Common tool kits.

If you're not sure of the type of connectors that are kept in the case, these pictures will give you an idea. There may be other electrical connectors not listed here. The ones you keep in the case depends upon the type of equipment you have. You find them listed in the parts manuals for your equipment.

Get 'em by these FSN's and nomenclature:

5340-641-8645	BUSHING, RUBBER
5340-514-4455	BUSHING, RUBBER
5340-514-4457	BUSHING, RUBBER
5340-514-4454	BUSHING, RUBBER
5340-514-4456	BUSHING, RUBBER
5340-772-2343	BUSHING, RUBBER
5340-772-2322	BUSHING, RUBBER
5340-752-7628	BUSHING, RUBBER
5340-772-2323	BUSHING, RUBBER
5340-559-0283	BUSHING, RUBBER
5935-771-6523	CONTACT, ELECTRICAL
5935-771-6525	CONTACT, ELECTRICAL
5935-771-6527	CONTACT, ELECTRICAL
5935-368-4852	CONTACT, ELECTRICAL
5935-771-6524	CONTACT, ELECTRICAL
5935-771-6526	CONTACT, ELECTRICAL

PS MORE



5935-636-6876
CONTACT, ELECTRICAL

5935-491-8193
CONTACT, ELECTRICAL

5935-752-7648
CONTACT, ELECTRICAL

5935-259-3143
CONTACT, ELECTRICAL

5935-752-7655
CONTACT, ELECTRICAL

5935-752-7649
CONTACT, ELECTRICAL

5935-752-7651
CONTACT, ELECTRICAL

5935-491-8194
CONTACT, ELECTRICAL

5935-593-6442
GASKET

5330-641-4338
GASKET

5330-543-6849
GASKET

5330-641-4336
GASKET

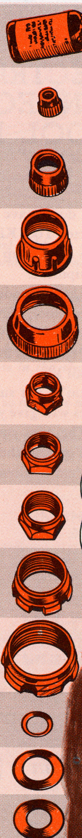
5330-599-6089
GASKET

5935-752-7630
GROMMET, RUBBER

5325-338-1274
GROMMET, RUBBER

5325-090-5426
GROMMET, RUBBER

5970-159-1598
INSULATING
COMPOUND,
ELECTRICAL



6810-264-8983
METHYL ETHYL KETONE,
TECHNICAL

5935-333-3088
NUT, BUSHING RETAINER,
ELECTRICAL CONNECTOR

5935-772-3307
NUT, BUSHING RETAINER,
ELECTRICAL CONNECTOR

5935-333-9414
NUT, BUSHING RETAINER,
ELECTRICAL CONNECTOR

5935-772-3309
NUT, BUSHING RETAINER,
ELECTRICAL CONNECTOR

5975-697-6991
NUT, COUPLING,
ELECTRICAL CONDUIT

5975-697-6992
NUT, COUPLING,
ELECTRICAL CONDUIT

5975-697-7769
NUT, COUPLING,
ELECTRICAL CONDUIT

5975-697-7860
NUT, COUPLING,
ELECTRICAL CONDUIT

5975-771-6634
NUT, COUPLING,
ELECTRICAL CONDUIT

5330-514-4461
RETAINER, PACKING

5330-514-4460
RETAINER, PACKING

5330-514-4462
RETAINER, PACKING

5935-636-6876
CONTACT, ELECTRICAL

5935-491-8193
CONTACT, ELECTRICAL

5935-752-7648
CONTACT, ELECTRICAL

5935-259-3143
CONTACT, ELECTRICAL

5935-752-7655
CONTACT, ELECTRICAL

5935-752-7649
CONTACT, ELECTRICAL

5935-752-7651
CONTACT, ELECTRICAL

5935-491-8194
CONTACT, ELECTRICAL

5935-593-6442
GASKET

5330-641-4338
GASKET

5330-543-6849
GASKET

5330-641-4336
GASKET

5330-599-6089
GASKET

5935-752-7630
GROMMET, RUBBER

5325-338-1274
GROMMET, RUBBER

5325-090-5426
GROMMET, RUBBER

5970-159-1598
INSULATING COMPOUND, ELECTRICAL

6810-264-8983
METHYL ETHYL KETONE, TECHNICAL

5935-333-3088
NUT, BUSHING RETAINER, ELECTRICAL CONNECTOR

5935-772-3307
NUT, BUSHING RETAINER, ELECTRICAL CONNECTOR

5935-333-9414
NUT, BUSHING RETAINER, ELECTRICAL CONNECTOR

5935-772-3309
NUT, BUSHING RETAINER, ELECTRICAL CONNECTOR

5975-697-6991
NUT, COUPLING, ELECTRICAL CONDUIT

5975-697-6992
NUT, COUPLING, ELECTRICAL CONDUIT

5975-697-7769
NUT, COUPLING, ELECTRICAL CONDUIT

5975-697-7860
NUT, COUPLING, ELECTRICAL CONDUIT

5975-771-6634
NUT, COUPLING, ELECTRICAL CONDUIT

5330-514-4461
RETAINER, PACKING

5330-514-4460
RETAINER, PACKING

5330-514-4462
RETAINER, PACKING

5330-514-4459
RETAINER, PACKING

5330-514-4458
RETAINER, PACKING

5310-752-7639
WASHER, SPRING TENSION

5310-752-7640
WASHER, SPRING TENSION

5310-771-6721
WASHER, SPRING TENSION

5310-771-6722
WASHER, SPRING TENSION

You can get the items up to this point as a kit, FSN 5935-570-1380, on initial issue only. When you need to replace any of the items, you order 'em individually—not as a whole kit.

Connector Assy "Y"
Gage Wire 12, 14, 16
FSN 5935-699-9004

Ferrule, Electrical Connector
Gage Wire 12
FSN 5940-057-2930

Ferrule, Electrical Connector
Gage Wire 16
FSN 5940-057-2931

Ferrule, Electrical Connector
Gage Wire 14
FSN 5940-057-2929

Shell, Male (Rubber)
Gage Wire 16
FSN 5975-660-5962

Shell, Male (Rubber)
Gage Wire 14
FSN 5935-833-8561

Shell, Male, Ribbed (Rubber)
Gage Wire 14
FSN 5935-399-6673

Shell, Male (Rubber)
Gage Wire 12
FSN 2590-695-9076

Shell, Female (Rubber)
Gage Wire 16
FSN 5935-691-5591

Shell, Female (Rubber)
Gage Wire 14
FSN 5935-572-9180

Shell, Female (Rubber)
Gage Wire 12
FSN 2590-695-9077

Sleeve, Insert Plastic
Gage Wire 14, 16
FSN 5970-833-8562

Terminal Assy (Female) (solder)
Gage Wire 12, 14, 16
FSN 5940-846-5012

Terminal Assy (Female) (Crimp)
Gage Wire 12, 14, 16
FSN 5940-399-6676

Washer, "C" (Terminal Retaining)
Gage Wire 16
FSN 5310-656-0067

Washer, (Slotted) "C" (Terminal Retaining)
Gage Wire 14
FSN 5310-833-8567

Washer, "C" (Terminal Retaining)
Gage Wire 12
FSN 5310-595-7044

Washer, Plain, (Terminal Retaining)
Gage Wire 12 (only)
FSN 5310-298-8903

PS END

5330-514-4459
RETAINER, PACKING

5330-514-4458
RETAINER, PACKING

5310-752-7639
WASHER, SPRING TENSION

5310-752-7640
WASHER, SPRING TENSION

5310-771-6721
WASHER, SPRING TENSION

5310-771-6722
WASHER, SPRING TENSION

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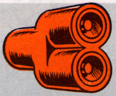
Connector Assy "Y"
Gage Wire 12, 14, 16
FSN 5935-699-9004



Ferrule, Electrical
Connector
Gage Wire 12
FSN 5940-057-2930

Ferrule, Electrical
Connector
Gage Wire 16
FSN 5940-057-2931

Ferrule, Electrical
Connector
Gage Wire 14
FSN 5940-057-2929

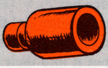
Shell, Male (Rubber)
Gage Wire 16
FSN 5975-660-5962

Shell, Male (Rubber)
Gage Wire 14
FSN 5935-833-8561

Shell, Male, Ribbed
(Rubber)
Gage Wire 14
FSN 5935-399-6673

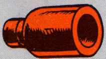
Shell, Male (Rubber)
Gage Wire 12
FSN 2590-695-9076

Shell, Female (Rubber)
Gage Wire 16
FSN 5935-691-5591



Shell, Female (Rubber)
Gage Wire 14
FSN 5935-572-9180

Shell, Female (Rubber)
Gage Wire 12
FSN 2590-695-9077



Sleeve, Insert Plastic
Gage Wire 14, 16
FSN 5970-833-8562

Terminal Assy (Female)
(solder)
Gage Wire 12, 14, 16
FSN 5940-846-5012

Terminal Assy (Female)
(Crimp)
Gage Wire 12, 14, 16
FSN 5940-399-6676

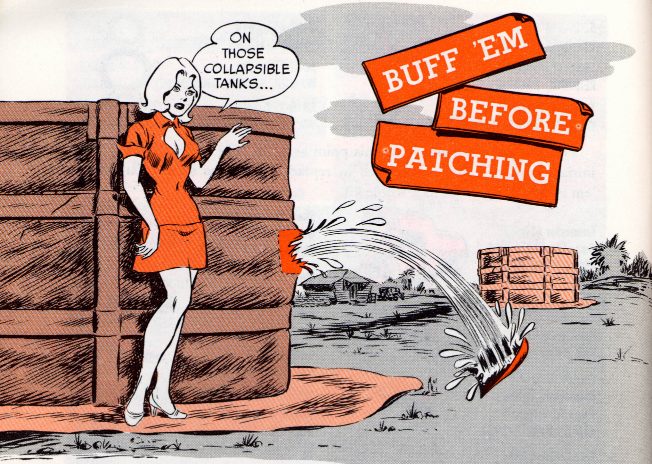
Washer, "C" (Terminal
Retaining)
Gage Wire 16
FSN 5310-656-0067

Washer, (Slotted) "C"
(Terminal Retaining)
Gage Wire 14
FSN 5310-833-8567

Washer, "C" (Terminal
Retaining)
Gage Wire 12
FSN 5310-595-7044

Washer, Plain,
(Terminal Retaining)
Gage Wire 12 (only)
FSN 5310-298-8903

PS END



If you've ever tried to put a patch on a waxed surface, you know it won't work. Things won't stick to wax too good.

A patch won't stick to your collapsible fabric tanks for the same reason—wax. The patch and the tanks have hydrocarbon wax on 'em, and a patch won't stick until you've buffed the patch and the place to be patched.

After you've done a good buffing job, make sure you wipe all the dust off the patch and the tank.

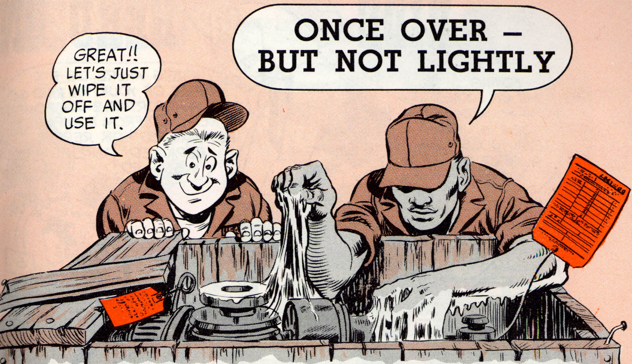
Before you apply the patch, clean it with methyl ethyl ketone, FSN 6810-281-2785, 1 gal.

Always use the patching material and compounds furnished with your tank. Repair materials and compounds of the different manufacturers aren't alike. Even though you use the same patching methods for the tanks, you can't mix the materials and compounds.

HOL-GAR PLUG FSN

The correct FSN for 18-MM spark plugs for your Hol-Gar 10-KW WK9 generator is FSN 2920-293-5212. Make a note to update your TM 5-6115-269-20P (Sep 64)—and tell support so they can put it into their -35P.

ONCE OVER – BUT NOT LIGHTLY



You wouldn't think of trying to drive your intrenching machine with a wheel missing. Of course you wouldn't. But you may be doing something that will ruin your equipment just as fast. How so?

The new equipment you get may still be processed for shipment and storage. That means certain things have been done to that equipment to make sure you get it in perfect operating condition.

Maybe the clutches and brakes have been blocked, belts removed, and the cooling system drained, or other things could have been done so that equipment would get to you in good shape.

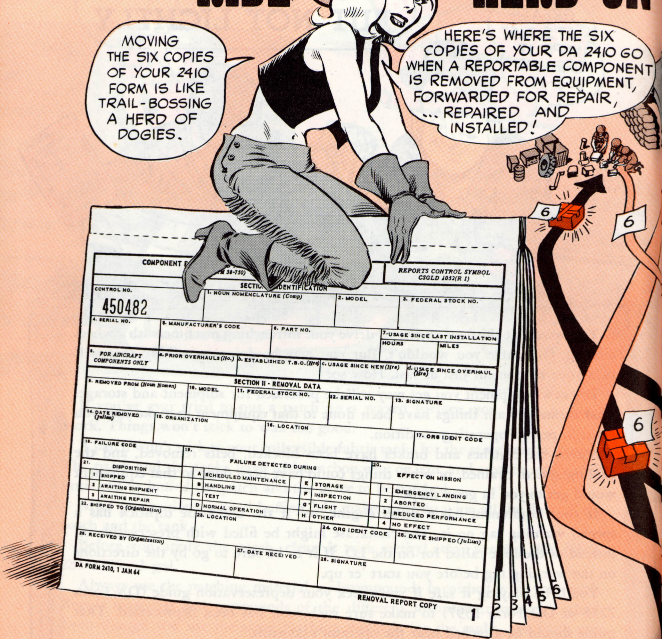
If your equipment has a diesel engine, see if the crankcase dipstick has a special warning tag on it. The crankcase might be filled with preservative oil instead of the lube called for on the LO. If it is, be sure to go by the directions on the warning tag before you start 'er up.

You'll be playing it safe if you check your depreservation guide (DA Form 2258 or DD Form 1397) to make sure each item has been deprocessed. That guide should be attached near the operator's controls.

When the people get your equipment ready for shipment they fill out one of the forms so you'll know exactly what they've done and you'll know exactly what you have to do before you use it.

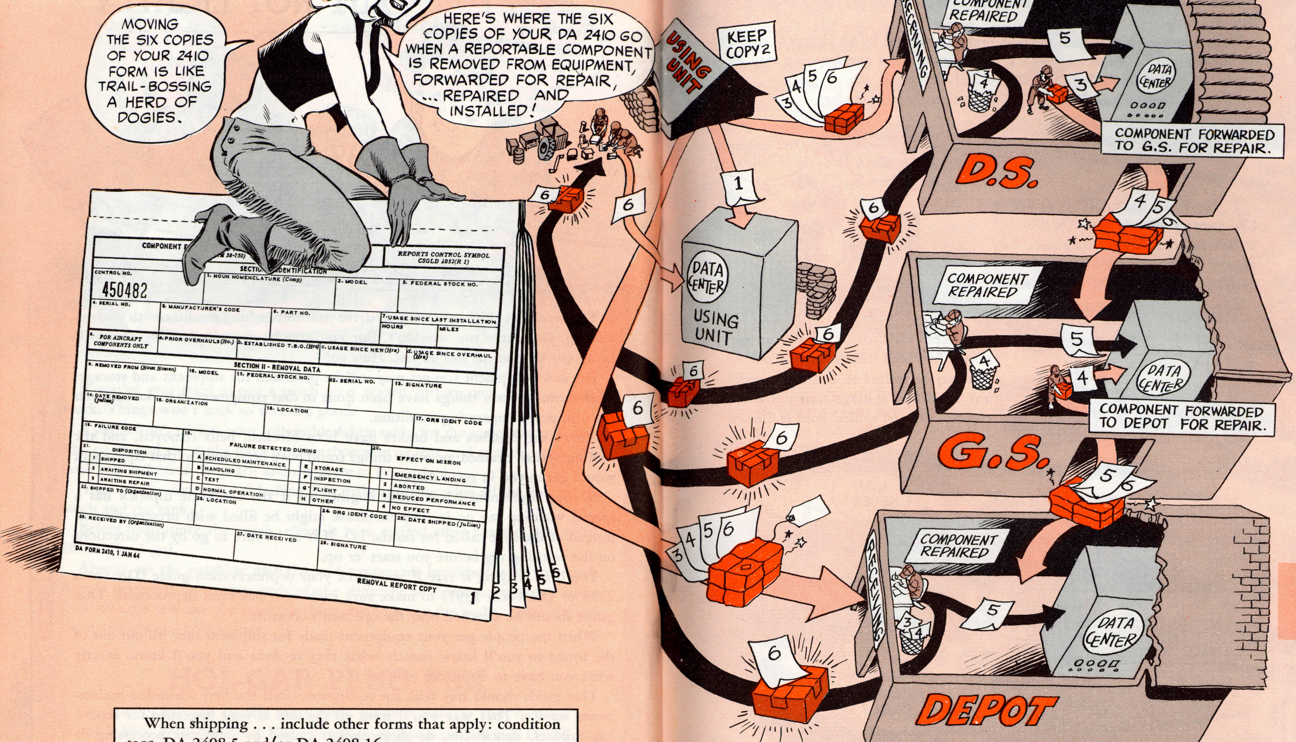
That guide should stay with the equipment until the first scheduled maintenance service. That way you'll have all the info at your fingertips for reporting failures, deficiencies, or shortcomings caused by improper processing or deprocessing.

RIDE HERD ON



When shipping . . . include other forms that apply: condition tags, DA 2408-5 and/or DA 2408-16.

RIDE HERD ON THE 2410



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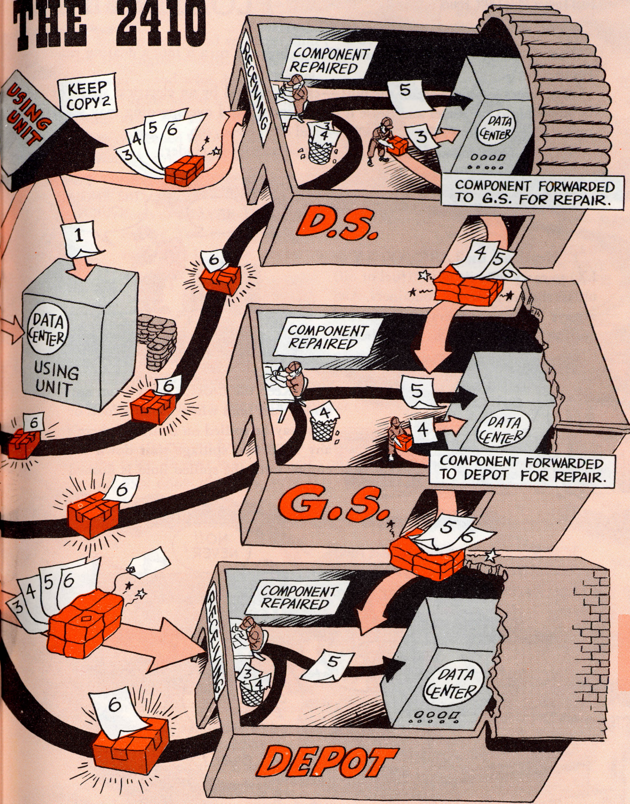
THE 2410


USING UNIT
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COMPONENT FORWARDED TO G.S. FOR REPAIR.
D.S.
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COMPONENT FORWARDED TO DEPOT FOR REPAIR.
G.S.
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COMPONENT REPAIRED
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DEPOT

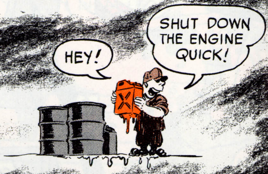
Fuel Fumes Plus LARC Equal . . .

FLOATING TIME

Fuel fumes in the bilge of your LARC lighter can turn it into a floating time bomb.

Any fumes — anywhere in the hull — can be ignited by an electrical spark or be sucked into the diesel and cause it to overspeed. And overspeeding may set it up for an explosion. Phfft . . . 1 LARC — and maybe you, too.

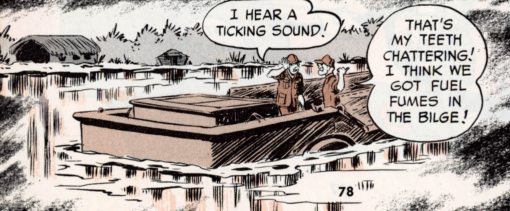
To keep from turning that LARC and yourself into a cinder:



1. Never use the LARC's (V, XV or LX) to carry volatile fluids (fuel or oil) unless they're in sealed containers. And always check containers for leaks and possible puncture hazards while aboard.

2. Keep the LARC's away from any tanker fuel lines where volatile fuels or oils may be spilled on board. If there's any accidental spillage shut down the engine until the spilled fluid is flushed away.

3. Never use any of the volatile fuels or oils (like gasoline or JP-4) as a cleaner aboard the LARC's. Say again, **never.**



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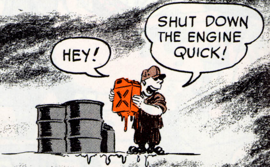

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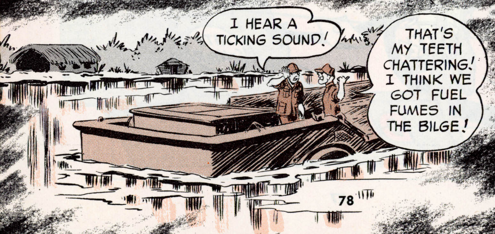
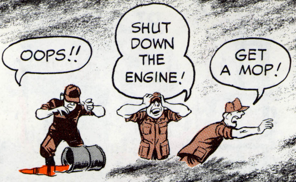
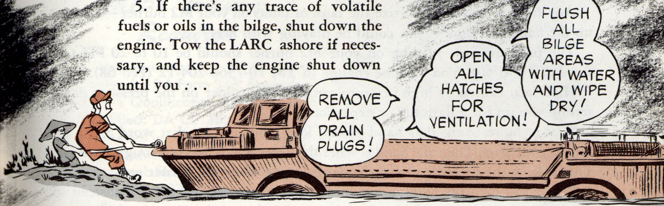


4. For any accidental spillage: Shut down the engine—flush off the area with water—and wipe dry. And don't start the engine again until you check all bilge areas for any fuel or oil that might have seeped through deck hatch seals or deck cover seals near the fuel tanks.



5. If there's any trace of volatile fuels or oils in the bilge, shut down the engine. Tow the LARC ashore if necessary, and keep the engine shut down until you . . .

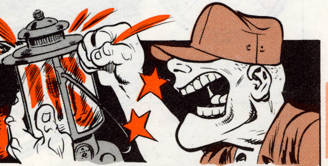


The best protection is prevention: Never clean with fuels or oils—never spill 'em.

Keep a sharp eye out for leaks and a sharp sniffer snorkeling around for fumes from the bilge. If your nose can't tell you, there's an Indicator, combustible gas, portable, FSN 6665-292-9945, P/N MIL-1-2703 Type E, listed on page 37 of SC 6665-IL (Jul 67).

It can warn you when fuel fumes are on the loose that could lead to a fatal flame-out.

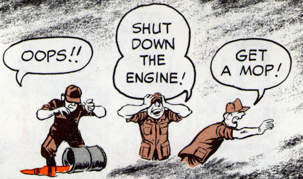
CHECK YOUR LANTERN



Swearin' at your gasoline lantern FSN 6260-170-0430 because it won't operate may generate some heat—but very little light.

If it's one made by Auto-Fab Mfg. Inc., it just may not work at all. Turn it in to your support and they'll send it to the Defense General Supply Center, Richmond, Va. on an exchange basis. TB 750-971-3 (EIR Digest), Jul 68, gives you the word on this.

BOMB



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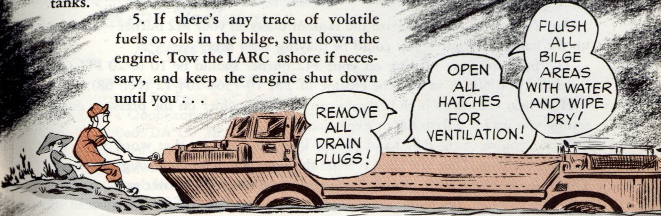

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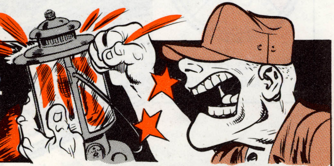

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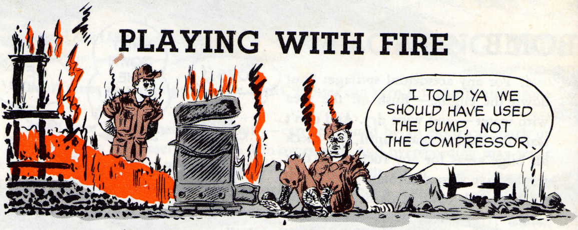
PLAYING WITH FIRE



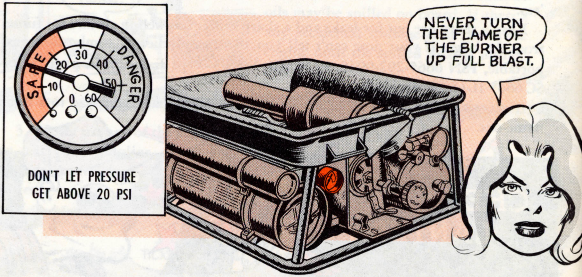
Any time you over-pressurize the tank or tanks on your M2 burner—or turn up the flame too high—you could be playing with fire!

The pressure gage reading on your M2 burner should be 10 to 20 PSI (instead of 20 to 30). You find the change in TM 10-7360-204-12 (Feb 68).

High heat caused by high pressure can melt the solder on the pressure gage, setting you up for a flash fire or explosion.

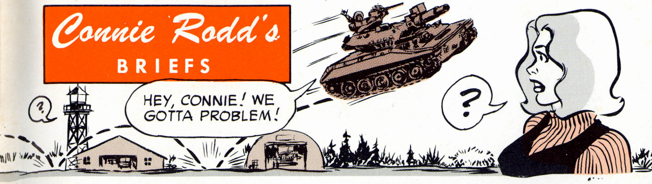
When you're using that hand pump, keep your eye on that word SAFE on the pressure gage. Once the hand reaches the letter F, you've got enough pressure. That'll keep the pressure out of the danger zone when the burner gets warm.

When you turn the flame up so high that it goes around the pot instead of directly under it, you may be askin' for trouble by overheating the solder.



UPCOMING ESC TM CHANGE

Read all about it in AR 750-57 (15 Aug 68)! New ESC TM's soon will be on the way with individual component ratings of GREEN-AMBER-RED instead of 10 through 0. But don't toss out those ESC's in your equipment logs till the new types arrive.



M151 Training Required

No one operates an M151 ¼-ton truck unless his DA Form 348, Equipment Operator's Qualification Record, shows he's qualified. DA Cir 385-21 (Dec 68) gives the word — training in safe operation of this vehicle is required before you take the wheel. Natch, this goes for other vehicles in the G838-series ¼-ton truck family, too.

Longer Oil Change

You Seminole (U-8) mechs should do your thing — engine oil change — every Periodic instead of every Intermediate. That's provided, of course, your bird has been modified by MWO 55-1510-201-30/5 with Ch 2 (27 Aug 68).

M6 Respirator

Replacement cartridges and repair parts are not stocked for the M6 paint spray air filtering respirator (FSN 4240-817-9233). When the M6 is not longer serviceable you just get a new respirator.

Handy How-to Handbook

For quick and easy how-to answers on such things as PM, CMMI, unit supply operation, pubs info, TAMMS SOP, etc., you now have DA Pam 700-2 (Dec 68), Commanders' Supply and Maintenance Handbook. The pocket-sized book is loaded with sample forms.

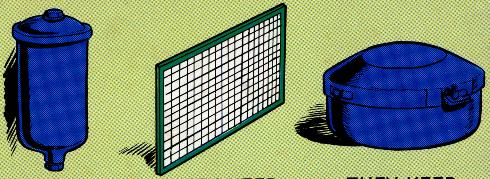
Generator Men, Note

That article on the inside front cover of PS Issue 194 wasn't meant for Powermen (MOS 52A10) only. It was for all you guys whose work is mainly on power generators.

Toe|M Toe Scoop

Hang on to your copy of DA Cir 310-44 (5 Nov 67), Army Authorization Documents System. Its expiration date has been extended to November 1969 by HQ, DA Letter, FORPP-FP (16 Nov 68), Subj: Instrs TO/TD Structure Ceilings and Conversion, G-series TOE. The word will hit you thru your command channels.

Would You Stake Your Life right now on the Condition of Your Equipment?



THEY KEEP LIQUIDS CLEAN AND FREE OF GRIT!

THEY KEEP MACHINES, ELECTRONICS COOL

THEY KEEP AIR CLEAN AND FREE OF DUST

ALL YOU DO IS...

KEEP FILTERS CLEAN